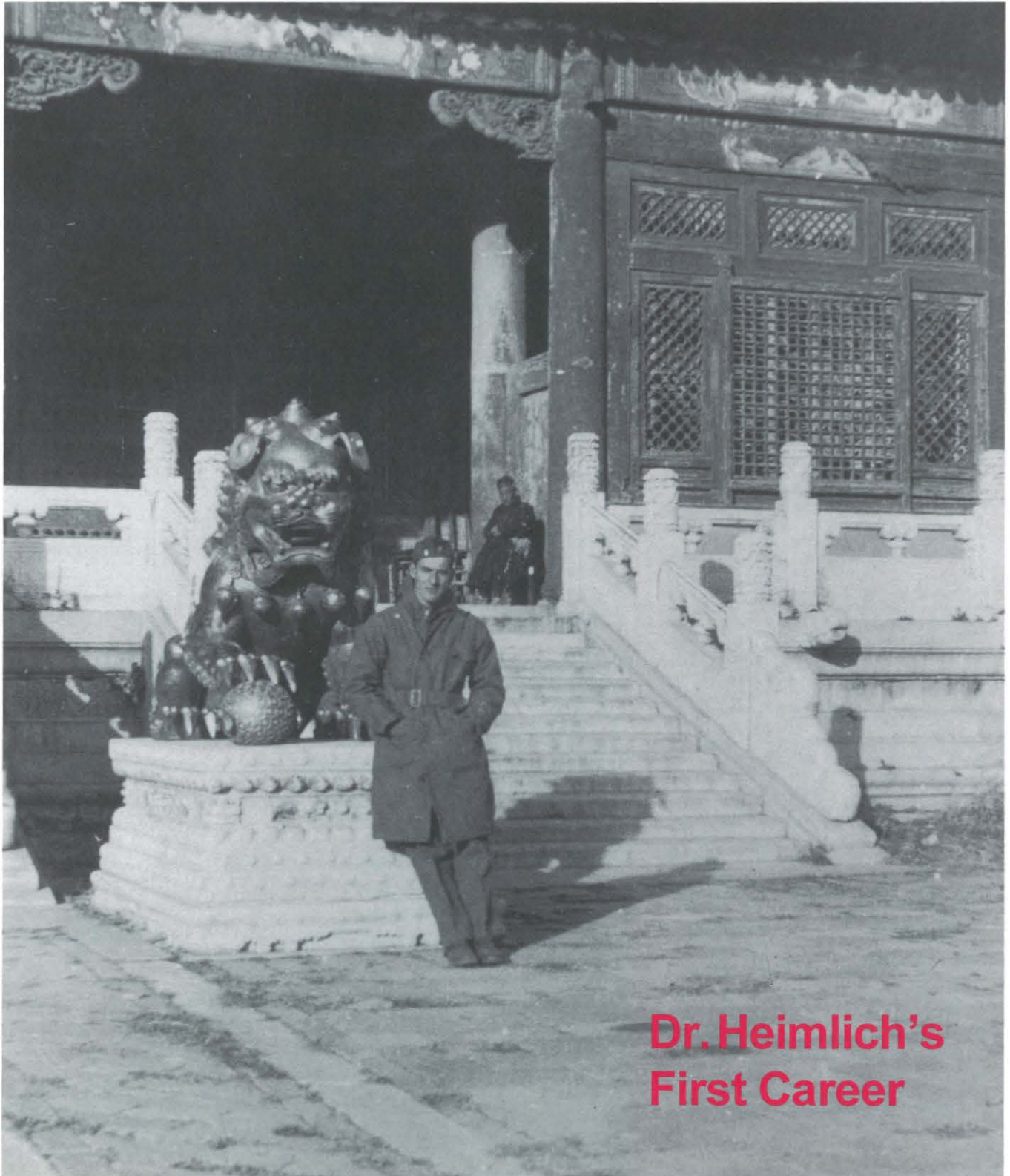


# ***NAVY MEDICINE***

May-June 1995



**Dr. Heimlich's  
First Career**

**Surgeon General of the Navy  
Chief, BUMED**

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**Deputy Surgeon General  
Deputy Chief, BUMED  
Chief, Medical Corps**

RADM Harold M. Koenig, MC, USN

**Editor**

Jan Kenneth Herman

**Assistant Editor**

Virginia M. Novinski

**Editorial Assistant**

Nancy R. Keesee

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May-June 1995

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**COVER:** Before he developed the lifesaving maneuver that made his name a household word throughout the world, LTJG Henry Heimlich had another career as a Navy medical officer serving in China during World War II. Interview on page 12. Photo courtesy of Dr. Henry Heimlich.



# RADM Harold Koenig Selected as Next SG



**O**n 27 March 1995, the President nominated RADM Harold Koenig as the 32nd Surgeon General of the Navy and 36th Chief, Bureau of Medicine and Surgery. VADM-selectee Koenig, MC, Deputy Surgeon General of the Navy; Deputy Chief, BUMED; and Chief, Navy Medical Corps in Washington, DC, is a native of Salinas, CA. He attended the U.S. Naval Academy and graduated from Brigham Young University with a B.S. degree in chemistry. He received his M.D. from Baylor University College of Medicine and did his internship at Texas Children's Hospital in Houston, TX. Dr. Koenig trained in pediatrics and pediatric hematology-oncology at the Naval Hospital, San Diego, CA. He is board certified in both specialties.

Dr. Koenig has served as a general medical officer, residency training program director, department chairman, director of medical services, executive officer, and commanded Naval Hospital San Diego, and the Naval Health Sciences Education and Training Command, Bethesda, MD. His staff tours included positions as Director, Health Care Operations in the Office of the Chief of Naval Operations and Deputy Assistant Secretary of Defense (Health Affairs) for Health Services Operations. He was made a diplomate of the American College of Healthcare Executives on 6 Feb 1995.

RADM Koenig's military awards include the Defense Superior Service Medal, Legion of Merit with gold star, Navy Meritorious Service Medal with gold star, Navy Commendation Medal, and Navy Achievement Medal.

# Flag Officer Selectees

**R**ADM-selectee **John B. Cotton**, MC, USNR, is currently director of health services for Readiness Command 11 in Dallas, TX. He received his B.S. degree in biology from Southern State College, Magnolia, AK, in 1963. He then received a B.S. degree in medicine along with his M.D. from the University of Arkansas School of Medicine in 1967. He was commissioned in 1966 through the Ensign 1915 Program. Subsequent active duty assignments included tours aboard USS *Rockbridge*, USS *Durham*, and Navy Ammunition Depot, McAlester, OK.

Released from active duty in 1971, Dr. Cotton affiliated with the Naval Reserve in 1972 in McAlester. Reserve assignments between 1972 and 1979 included various regional medical center units. In 1979 he was assigned as commanding officer of 4th Force Service Support Group, Headquarters and Supply Company at NRTC Oklahoma City, OK. Between 1980 and 1987, he was commanding officer and group surgeon of the

Fourth Marine Air Wing Medical Marine Air Group 41 at NAS Dallas. In 1987 he was appointed director of medicine of Fleet Hospital 21 with headquarters at NAS Dallas, and in 1990 was selected its commanding officer. From October 1993 until April 1994, he served as medical officer of USS *Holland*.

Dr. Cotton's military awards include the Legion of Merit, Navy Unit Commendation, Overseas Service Ribbon, Fleet Marine Force Ribbon, National Defense Service Medal with bronze star device, Sea Service Deployment Ribbon, and the Armed Forces Reserve Medal with hourglass device.

RADM-Selectee **Michael L. Cowan**, MC, commanding officer, Naval Hospital, Camp Lejeune, NC, received his M.D. from Washington University School of Medicine (St. Louis). He completed his residency at Naval Hospital, Bethesda, MD, and became a specialist in internal medicine and hematology.

Dr. Cowan has held a variety of clinical, research, and executive assignments which include chief of internal medicine, Naval Hospital, Rota, Spain; director of human services, Navy Malaria Vaccine Research Development Program; chief of operational and emergency medicine and vice chairman of military medicine, USUHS, Bethesda, MD; Medical Corps career plans officer for the Commander, Naval Medical Command, Washington, DC; special assistant for the national disaster medical system, Office of the Assistant Secretary of Defense (Health Affairs); executive officer, Naval Hospital, Beaufort, SC.

Immediately prior to his duty at Camp Lejeune, he was force medical officer for Commander, Naval Surface Forces, Pacific. He is especially interested in operational medicine and recently served as joint/unified task force surgeon for Operation Restore Hope in Somalia. In 1987 he completed a 1-year study of National Medical Mobilization as a senior research fellow at the National Defense University.

Dr. Cowan has authored and co-authored over 20 scientific and professional articles, one small book on shipboard medicine, and has lectured widely on military medical education and disaster preparedness. His military awards include the Defense Superior Service Medal, Legion of Merit, Defense Meritorious Service Medal, Navy Meritorious Service Medal (two awards), the USUHS Outstanding Service Medal, and commendation medals from the Joint Services, the Navy, and the Public Health Service. He has also earned the Army's Expert Field Medical Badge.



CAPT John B. Cotton, MC, USNR



CAPT Michael L. Cowan, MC



RADM-selectee **H. Edward Phillips, MSC**, is currently executive assistant to the Surgeon General. He received his B.A. degree in history and political science from the University of Northern Iowa in 1968 and was commissioned in the Medical Service Corps. He then received his M.A. in hospital and health care administration in 1973 from the University of Iowa.

After completion of Officer Candidate School, Newport, RI, CAPT Phillips began his career at the National Naval Medical Center, Bethesda, MD, followed by a tour at Naval Hospital, Quantico, VA. In 1973 he began a series of tours where he was involved in the Medical Military Construction Program with his assignment as the medical construction liaison officer for Naval Hospital, New Orleans, LA. Following completion of this project in 1977, he was transferred to Naval Hospital, Camp Lejeune, NC, as the medical construction liaison officer. He concluded his tour at Camp Lejeune as director of healthcare administration.

CAPT Phillips then served as assistant chief of staff for logistics, Na-

val Medical Command, National Capital Region, Bethesda, MD. Subsequent tours included deputy director of the Defense Medical Facilities Office in the Office of the Assistant Secretary of Defense (Health Affairs), Washington, DC; executive assistant to the Commander, Naval Medical Command, Washington, DC; director, direct healthcare division, Bureau of Medicine and Surgery; and executive officer, Naval Hospital Camp Lejeune.

CAPT Phillips's awards include the Defense Meritorious Service Medal, Meritorious Service Medal (four awards), Navy Commendation Medal, and National Defense Medal (two awards). He is a certified healthcare executive and a diplomate to the American College of Health Executives.

RADM-selectee **John C. Weed, Jr., MC, USNR**, is currently director of health services at Naval Reserve Readiness Command Region 18. For undergraduate studies he attended Brown University and Tulane University. He was commissioned an ensign in the Naval Reserve 1915 Program in March 1965 while attending Tulane Medical School, where he received his M.D. degree in 1968. Additional training included an internship in obstetrics and gynecology at the University of Alabama/Birmingham, residency at Duke University, and a fellowship in gynecologic oncology at Duke.

Dr. Weed reported for active duty in 1975, serving as gynecologic oncologist at the National Naval Medical Center, Bethesda, MD, until 1977. His selected Reserve assignments included medical officer billets in the four Marine Division special augment detachments in Mobile, AL; com-

manding officer of NRNHJAX110; regimental surgeon for the 24th Marines in Kansas City; group surgeon for 4th Force Service Support Group in Marietta, GA; and director of health services for Readiness Command Region 18.

In civilian life, Dr. Weed is professor of gynecologic oncology at the University of Kansas College of Medicine. He is certified by the American Board of Obstetrics and Gynecology, Inc. and voluntarily recertified in 1993. He was certified as special competency in gynecologic oncology in 1979. He is a life member of the Reserve Officers Association, Navy League, U.S. Naval Institute, Marine Corps Reserve Officers Association, and Reserve Officers Association of the U.S. Memberships in professional organizations include the American College of Obstetricians and Gynecologists, the American College of Surgeons, and the Society of Gynecologic Oncologists.

Dr. Weed's military awards include Meritorious Service Medal, Meritorious Unit Citation, National Defense Service Medal, Naval Reserve Service Medal, Fleet Marine Force Ribbon, and the Expert Pistol Medal. □



CAPT H. Edward Phillips, MSC



CAPT John C. Weed, Jr., MC

# Neurologist's Traveling Medicine Show

**A**s if the rigors of practicing medicine are not enough, try traveling from ship to ship by helicopter, over the shark-infested Red Sea, with only a portable EKG machine and what might resemble a doctor's black bag to treat patients.

Medicine mixed with adventure is not an unusual combination for former emergency room physician CDR Robert Seth Wall, MC, staff neurologist at Naval Medical Center Oakland (NMCO), CA. Since joining the Navy in 1980, he also served as chief medical officer for the 2nd Marine Division in the Gulf of Sidra in 1986, when Libya's COL Kadhafi threatened the U.S. military presence in the Mediterranean.

Wall has recently returned to NMCO from his latest adventure with the Navy—a deployment to ASU Bahrain in the North Red Sea called Operation Southern Watch. As part of Operation Desert Storm, the mission supported the arms embargo against Iraq.

"It was a very hazardous job, not from the standpoint of being shot at, but we were actually boarding and searching a variety of ships—freighters going up the Red Sea to the northern port of Aqaba, Jordan," said Wall, then group surgeon for Commander,

Task Group 152.1. Oftentimes the cargo hulls and ships' containers were three stories high. The boarding crew had to use climbing ropes which "required a lot of mountain-climbing skills and was very dangerous. We didn't have a lot of injuries but did have some broken ankles and arms."

Treating these injuries was difficult without the aid of an X-ray machine. "The biggest challenge to the whole mission was working with limited resources and virtually no equipment. Because the ships out there were all small—frigates, destroyers, and cruisers—they are not large enough to rate an X-ray facility," said Wall.

When it was absolutely necessary to get an X-ray, the physician and patient had to travel by helicopter to Hurghada, Egypt, where a local doctor had an "X-ray machine that looked like it was Marie Curie vintage," said Wall, who gained an appreciation for the technology available at NMCO during this experience. "When you talk about a wet reading, the X-rays were literally dripping from the developer" (modern X-ray equipment automatically dries the X-rays).

Wall's ability to make good diagnosis without all the supporting technology, strong clinical knowledge,

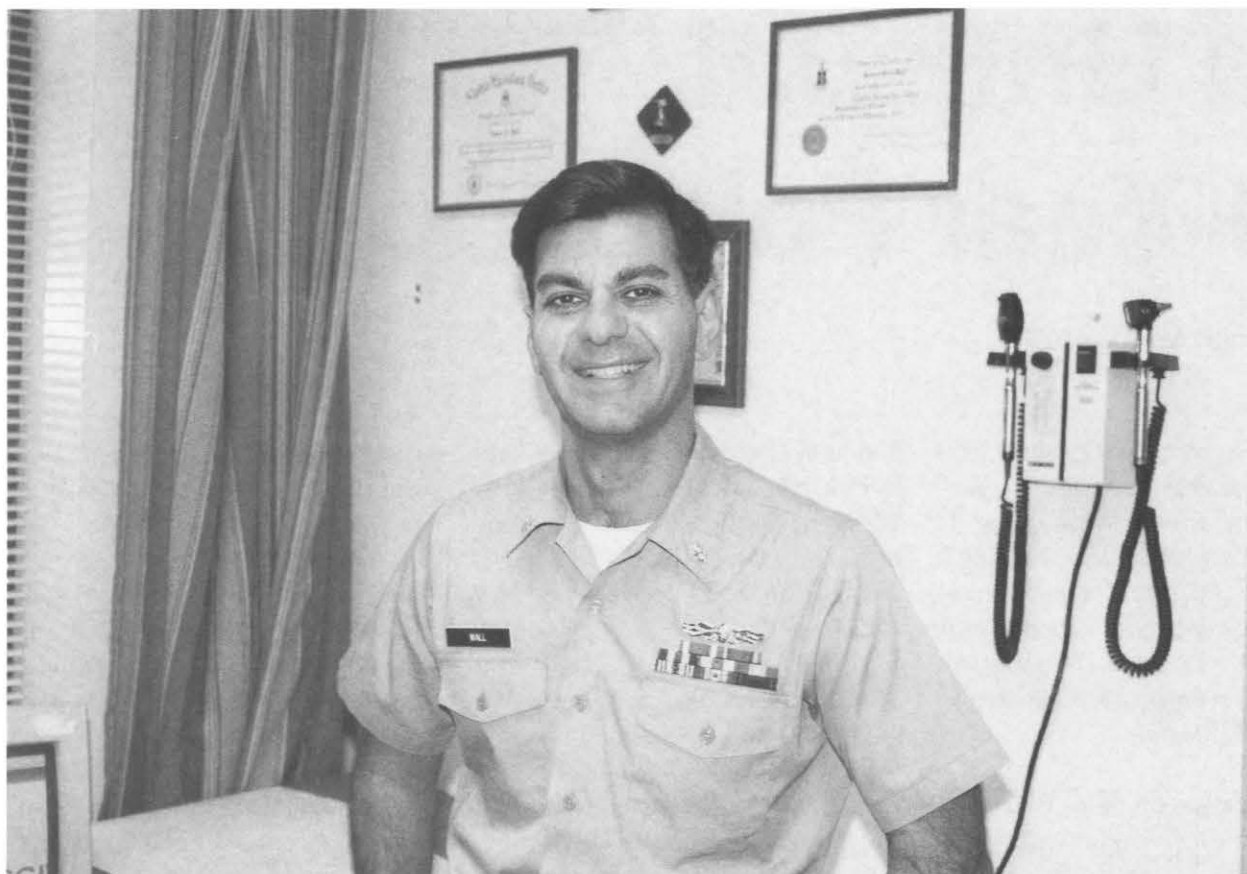
and the quick decision-making skills he acquired as an ER doctor before becoming a neurologist, proved invaluable during what was the biggest Red Sea disaster he had ever seen.

"Literally a week after we had extensive disaster drill training with the crew on USNS *Kaiser* (T-AO 187), the ship received a distress call around midnight that an Egyptian ferry, the *Al Qamar*, was on fire," explained Wall, adding that the Navy often responded to distress calls in the area. "The ferry was taking about 600 Egyptians from Saudi Arabia back to Egypt after the hajji, a Muslim pilgrimage to Mecca during the Ramadan [sacred holy days]."

"It was very scary," said Wall as he described the scene. Small rib boats from *Kaiser* maneuvered through 5- to 6-foot waves to reach the burning ferry. Passengers were jumping into the shark-infested water, while our helicopters scanned the choppy seas with high-powered lights to locate survivors.

"Of the 580 people that we could account for, approximately 180 suffered from exposure and hypothermia," said Wall, who coordinated the medical treatment of the evacuees. "Surprisingly there weren't that many burns, but I saw many fractured limbs





LCDR Robert S. Wall, MC

from people jumping off the ferry [30 to 40 feet] onto the smaller rescue ships."

For the next 12 hours and well into the next day, Wall and the crew worked nonstop to stabilize all the injured. "This is where my years—the thousands of hours that I logged as an ER doctor had paid off," he said. Wall received a Navy Commendation Medal from VADM D.J. Katz, for his "exceptional professional competence, foresight, decisiveness and stamina, as he led the efforts to receive, stabilize and care for 269 survivors of the burning Egyptian passenger ferry." The *Kaiser* unit is currently under consideration for the Humanitarian Service Medal.

After the rescue was completed, Wall called home. "Before I could tell my mother anything, she asked,

"Did you hear about the ferry fire that happened in the North Red Sea? My response was . . . well yes . . . we heard a little something about it," he said with a smile.

Other medical concerns in the area came from the subtropical and rocky terrain of the Red Sea environment. "Our group did not have a single case of malaria, dengue fever, or cholera," said Wall, who made sure mosquito netting was in place and the ships were self-contained.

Wall attended to a variety of illnesses at NMCO such as multiple sclerosis, Lou Gehrig's disease, epilepsy, migraines, headaches, tumors of the nervous system, and sleep disorders. Teaching is also very important to him. "Teaching keeps me in the literature. I am going to miss the residents who will be graduating in

July 1995. We will get by, but the place will take a different atmosphere once they are gone."

Wall sees his current tour at NMCO as a chance to refocus on his specialty and regroup before the next adventure. It is similar to "Indiana Jones [Raiders of the Lost Arc] being back at teaching archeology rather than going out and digging up the gold statues," he said. "One of the reasons I stayed in the Navy is being able to work in unusual places and environments—working with, in some cases, not the state-of-the-art equipment and yet still being able to produce a good result." □

—Story and photo by Georgianna Lear, Public Affairs Department, Naval Medical Center, Oakland, CA.

# An Unusual 50-Year Followup

Victor S. Falk, M.D.

*In the September-October 1994 World War II chronology, a photograph appeared on page 26 showing Navy physicians treating a native on Falalop Island in the Caroline Islands. Dr. Victor S. Falk is pictured at the right. When he saw the photo recently, Dr. Falk sent us the following article.*

In November of 1944, Biachenti, an 8-year-old native boy, was brought to our Marine Air Base dispensary on Falalop Island, Ulithi Atoll in the Western Carolines. He was accompanied by his guardian, a grizzled retired sailor, since his parents had been taken away by the Japanese to work in a labor camp. Some time before, Biachenti had fallen out of a tree and came in with an osteomyelitis of his left fibula. He was taken to our Quonset hut operating room where the plywood decks had been scrubbed so snowy white by a zealous young hospital corpsman that we removed our boondocker field shoes upon entering and operated in our stocking feet. The operation consisted of cauterization of the infected bone and the wound was packed with sterile vaseline gauze. Since we had no antibiotics at that time, I am sure that we did use sulfa powder as it was then customary to pour that into every wound and body orifice.

That was the last we saw of Biachenti, but I learned 50 years later

that he was seen several weeks later by Dr. Thomas Davis on another small island where he repeated the same procedure. Dr. Davis of Milburn, NJ, now age 86, recalls the patient very well.

Ulithi Atoll was not famous as a World War II battleground, but it was important as a fleet anchorage and became known as "Nimitz" secret weapon." Here as many as 1,500 U.S. ships would be anchored at one time. This is a sight that will never be seen again. There were rows of battleships, large and small carriers, cruisers and destroyers, and every conceivable type of auxiliary craft. The lagoon was protected by a necklace of small coral islands and massive submarine nets. Since the anchorage of 112 square miles was 4,000 miles closer to the war than Pearl Harbor, the ships could replenish all their needs such as fuel, food, ammunition, and mail from home. Also their casualties were offloaded and were then evacuated on stretchers stacked four high by transport planes from Ulithi to a base hospital at Guam 400 miles northeast. Ship repairs, necessitated by the kamikaze attacks, could either be accomplished at Ulithi or at least sufficient to get the ships back to Pearl Harbor.

Early in 1994 I returned to Ulithi by way of Guam and Yap and Pacific Missionary Airlines. I was greeted at the airstrip by dozens of the islanders

(Micronesians) who draped me with fresh floral headbands and leis and I was warmly "welcomed home." One of the first men that I saw was Biachenti, now age 58, quite obese and totally asymptomatic from his surgery half a century ago. It did not affect bone growth and he has been pain-free. Another native related that in 1945 he had stepped on glass and cut his foot. He recalled that "a tall Navy doctor" had sutured the wound. At that time I was 6'2" and when I showed him a picture of myself taken 50 years ago, he was sure that I was the one. He, too, had a good result as he has been walking barefoot for the last 50 years. He presented me with a fish and a basket finely woven from pandanus fronds.

My return to this peaceful atoll was one of the most gratifying experiences of my life. Tourism is discouraged and a permit is required to disembark there.

Fifty-year followups are not common and this one was most unusual and gratifying. Biachenti sent lavas home as gifts for Dr. Davis and me. □

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Dr. Falk resides in Stoughton, WI. Reprinted with permission from the *Wisconsin Medical Alumni Quarterly*.





BUMED Archives

*Left: Dr. Falk (right) treats Biachenti on Falalop Island. Below: Dr. Falk with chiefs and leaders at Ulithi. Biachenti, the subject of the 1944 surgery is third from left in the front row.*



Courtesy of Dr. Victor S. Falk

# ***Forward . . . From the Sea:*** **Navy Medical Support for** **Operation Uphold Democracy**

CAPT Bruce K. Bohnker, MC, USN (SF)

**F**orward . . . From the Sea, the Navy-Marine Corps guidepost for projecting naval power "across the seas to foreign waters and shores in both peace and war," includes the capabilities of Navy medicine. Operations in Grenada, Lebanon, and Somalia required shipboard medical support for joint forces ashore. Recently for Operation Uphold Democracy, joint forces again called upon shipboard medical capabilities for support.

After 1991 increasing political and economic turmoil in Haiti suggested the potential requirement for U.S. intervention. Planning for possible intervention developed three separate scenarios which overlapped both militarily and medically. The first plan protected U.S. citizens with amphibious forces conducting a noncombatant evacuation operation (NEO) in an uncertain environment. The second plan would respond to a government of Haiti request for assistance by a peaceful landing of U.S. Army forces. The final plan supported a U.S. Army airborne assault to protect American lives and restore order in Haiti.(1)

Each scenario required medical support planning integrated into overall military actions. There were no American medical facilities on the island of Hispaniola, and host-nation medical facilities were severely limited. The NEO option included a large deck amphibious ship (LPH/LHD) with integral echelon II medical capability. Medical requirements for the other options considered nearby U.S. shore-based military facilities. Naval Station Guantanamo Bay, Cuba, was about 200 miles away; NAS Roosevelt Roads, Puerto Rico, was about 300 miles away; and NAS Jacksonville, FL, was about 1,000 miles distant. Naval Hospital Guantanamo Bay was severely taxed supporting Haitian and Cuban migrant populations. These limitations led to employment of the hospital ship and other shipboard medical capabilities to support joint forces until U.S. Army facilities ashore could be established.(2,3)

In September 1994, deteriorating economic conditions and diplomatic efforts led the government of Haiti to accept U.S. military assistance. Operation Uphold Democracy landed the U.S. Army 10th Mountain Division

on 19 Sept 1994 from USS *Dwight D. Eisenhower* (CVN-69) and other ships, which had transported them to Haiti. Marines from Special Purpose Marine Air Ground Task Force (SPMAGTF) Carib landed near Cap Haitien from USS *Wasp* (LHD-1) and other ships. Naval medical forces provided all inpatient medical services in the Joint Operating Area (JOA) until 2 Oct 1994, when the 28th Combat Support Hospital (CSH) (-) was fully functional ashore. This allowed USNS/MEDTREFAC *Comfort* (T-AH-20) to return to CONUS but *Wasp* and USS *America* (CV-66) remained in the JOA providing echelon II capability until approximately 15 Oct 1994.

## **NAVFOR Medical Capabilities**

As shown in Table 1, naval forces provided significant medical capability from a variety of platforms offshore. Medical personnel on board *Wasp*, USS *Nashville* (LPD-13), and SPMAGTF Carib supported Marines operating near Cap Haitien. Medical personnel on board *America* and *Dwight D. Eisenhower* supported embarked forces and were augmented



by on board U.S. Army medical personnel. Medical personnel on board USS *Ashland* (LSD-48), USS *Whidbey Island* (LSD-41), and USS *Mount Whitney* (LCC-20) supported a variety of missions. USNS/ MEDTRE *Comfort* contributed significant echelon III medical capability. Two separate units comprise the hospital ship; USNS *Comfort* is Military Sealift Command (MSC) vessel, and MEDTRE FAC *Comfort* is the medical treatment facility embarked on the MSC hull. U.S. Army air ambulance helicopters transported patients to the helo deck on board MEDTRE FAC *Comfort* without significant problems. Patients who could not be returned to duty within the 5-day evacuation policy were transported to Port-au-Prince Airport for further aeromedical evacuation by USAF assets. MEDTRE FAC *Comfort* supported joint forces ashore near Port-au-Prince and its capabilities allowed significant mission growth. In addition to its surgical expertise, capabilities for laboratory and diagnostic radiology were employed. *Comfort* provided U.S. Army forces ashore with preventive medicine assessment teams, and supported the medical civil action program (MEDCAP) near Port-au-Prince with personnel, medical equipment repair, and supplies. Navy medical personnel with *Wasp*, *Nashville*, and SPMAGTF Carib also contributed medical supplies and expertise for MEDCAP missions near Cap Haitien. Without doubt *Comfort* was the most capable medical facility in the theater.

### Medical Care Issues

NAVFOR assets provided all inpatient capability until the 28th CSH (-) opened ashore on 1 Oct 1994. Figure 1 presents NAVFOR inpatient admissions from 18 Sept to 2 Oct 1994 by branch of service. Figure 2

Ship	Hull Number	Beds	ORs	Blood Units	Officers*	Hospital Corpsmen
MEDTRE FAC COMFORT	TAH-20	250	4	2497	96	283
WASP**	LHD-1	61	3	701	20	28
AMERICA#	CV-66	55	1		6	32
EISENHOWER#	CVN-69	64	1		6	34
MT WHITNEY	LCC-20	18			1	12
WHIDBEY IS	LSD-41	8			1	8
ASHLAND	LSD-48	8			2	15
NASHVILLE	LPD-13	9			1	6
SAVANNAH	AOR-4	6			1	4
TOTAL		479	9	3198	134	422

\* Included Medical Corps, Nurse Corps, and Medical Service Corps  
 \*\* Augmented with two MMART teams  
 # Does not include embarked U.S. Army medical personnel

presents NAVFOR inpatient admissions by shipboard medical treatment facility during that period. Figure 3 demonstrates daily inpatient census for MEDTRE FAC *Comfort* while in

the JOA. A number of civilians from Haiti and other countries received care; the shipboard medical facilities offered the highest level of care available in theater. There were 24 female

NAVFOR INPATIENTS BY BRANCH OF SERVICE  
18 SEPT - 2 OCT 94

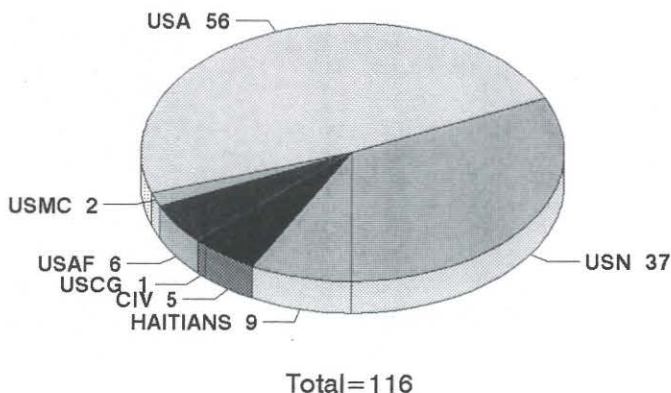
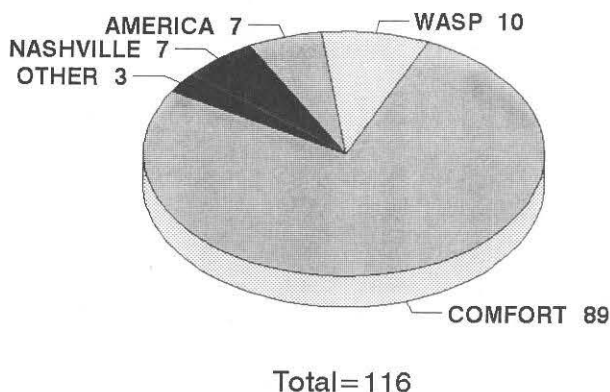


FIGURE 1

## NAVFOR INPATIENTS BY SHIP

18 SEPT- 2 OCT 94



OTHER: MT WHITNEY(2) ASHLAND(1)

FIGURE 2

military patients and 78 male military inpatients in NAVFOR facilities from 18 Sept to 2 Oct 1994, with a population of about 900 military women and 27,700 military men in the JOA. The deaths of two U.S. Army soldiers ashore and one Marine on board *Nashville* by self-inflicted gunshot wounds were not medically related.

### Preventive/Environmental Medicine Issues

Preventive/environmental medicine issues played a large role in Operation Uphold Democracy. Haiti is a poor country further hampered by the impact of the U.N.-imposed economic sanctions on medical and sanitation programs. HIV disease, tuberculosis, dengue, and malaria were significant medical problems ashore. The OPLAN required malaria chemoprophylaxis for all personnel though shipboard personnel who remained beyond 1 kilometer from shore were at minimal risk of encountering any mosquitoes. The requirement for meningococcal vaccination for all

participants contributed to difficulties in medical preparations.

Two significant shipboard preventive medicine problems were noted. One outbreak of gastroenteritis with about 70 cases was traced to improper

food preparation and handling. A separate outbreak of gastroenteritis with over 600 cases was attributed to viral etiology when all other possibilities were excluded. Ships at anchor in Port-au-Prince bay used their evaporators to produce fresh water without problems despite close proximity to shore. Careful preventive medicine monitoring was required to support efforts to be "environmentally green." Shipboard waste was collected in large cardboard boxes to be off loaded to scheduled resupply ships, and oily waste was stored until transferred to barges as needed. Efforts ashore to be "environmentally green" required shipboard transport of 20 sanitation trucks and 800 port-o-potties.

### Medical Planning Issues

The Annex Q (Medical Services) of the OPLAN required multiple daily reports (MEDLOC1, MEDSTAT, BLDREP, and MEDSITREP) which contributed to overburdening the GENADMIN message system already

## MEDTRE FAC COMFORT DAILY INPATIENT CENSUS

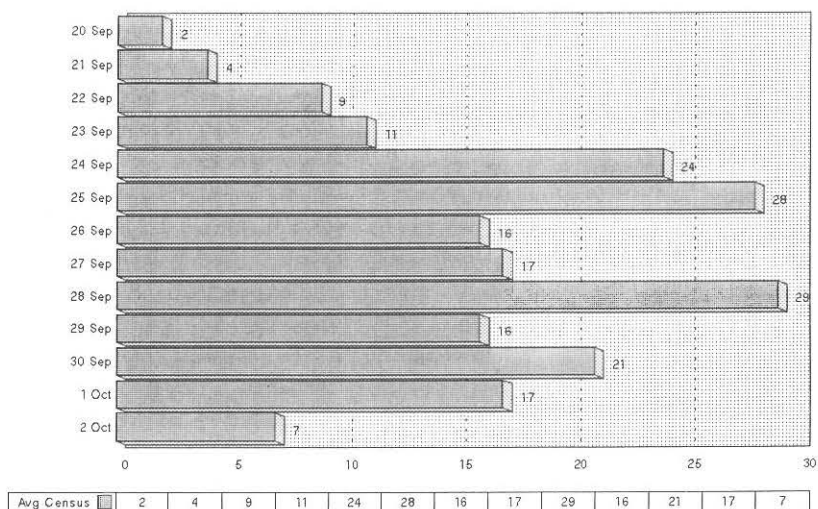


FIGURE 3



strained with operational tasking.(4) This was subsequently reduced to a single MEDSTAT report daily for NAVFOR echelon II capable units. The need for more familiarity with the GENADMIN message system by medical personnel was apparent. Inaccurate/inconsistent ICD-9 coding added to difficulties with patient information and tracking. Any soldier/sailor/marine with injury or illness leading to hospitalization generated considerable command interest. The INMARSAT (International Maritime Satellite Telephone) system was extensively employed to communicate with USNS/MEDTREFAC *Comfort*, and the military satellite telephone (POTS) system to communicate with *Wasp*. Daily blood reporting monitored blood status but did not track status of blood reconstituting supplies. Some of the frozen blood in

theater could not have been reconstituted due to lack of required supplies, though this did not become an issue for the operation. Inadequate medical screening prior to deployment placed an extra burden on medical and evacuation requirements.

## Conclusion

Navy forces provided significant medical support to joint forces during Operation Uphold Democracy. Medical capability was provided from a variety of ships including amphibious craft and aircraft carriers offshore. USNS/MEDTREFAC *Comfort* was uniquely employed to support joint forces until the Army hospital could be established ashore. Preventive/environmental medicine was important both for planning and execution to ensure health for personnel ashore and afloat. Medical planning issues

included refinement of medical reporting requirements, monitoring frozen blood reconstituting fluids, and enhancement of patient tracking.

Though the joint military actions did not require the full NAVFOR medical capabilities in Operation Uphold Democracy, Navy medicine was standing by to assist.

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3. Doctrine for Health Services Support in Joint Operations. *Joint Pub 4-02*; 1 April 94.
4. *Field Medical Message Text*. U.S. Atlantic Command, Norfolk, VA; 2 July 1989. □

Dr. Bohnker served as the Naval Forces (NAVFOR) Surgeon for Operation Uphold Democracy during September-October 1994, as well as Second Fleet/CJTF 120/CTF 185 Surgeon.

## Education and Training Restructuring

The Surgeon General has approved a three phase plan to restructure Navy Medical Department education and training. The purpose is to reduce headquarters ceiling and consolidate policy and management under a single Assistant Chief. Additional benefits of this plan include consolidated responsibility for operational readiness training, empowerment of schools, and consolidation at fleet locations.

**Phase One:** Ending on 30 Sept 1995. It includes the following elements:

- Disestablish the Naval Health Sciences Education and Training Command (HSETC), Bethesda, MD;
- Consolidate education and training policy, management, and resources under an Assistant Chief, Education, Training and Personnel (RADM J. Engel, NC, MED-03)
- Establish two new divisions in MED-05 for Education and Training Standards and Education and Training Operations;
- Move all remaining functions of HSETC to the Naval School of Health Sciences (NSHS), Bethesda, MD;
- Upgrade the NSHS detachment at Portsmouth to a Naval School of Health Sciences;

- Realign the NSHS detachments at Fort Sam Houston, TX, and Aurora, CO, to NSHS San Diego, CA. Realign the NSHS detachment (Naval Undersea Medical Institute) at Groton, CT, to the new NSHS at Portsmouth, VA;

- Centralize management of operational readiness training for all corps and all platforms under a new code in MED-05; and

- Upgrade the training commands to echelon three commands with reporting responsibility to MED-05.

**Phase Two:** 1 Oct 1995 to December 1997. This phase continues infrastructure reduction, transfers technical training from NSHS Bethesda, MD, to NSHS Portsmouth, VA, and develops a plan to establish a naval school of operational medicine.

**Phase Three:** January 1998 to December 2002. This phase completes the consolidation of technical training at NSHS Portsmouth, VA; completes construction of a new schoolhouse at NSHS Portsmouth, VA; vacates building 141 at the National Naval Medical Center, Bethesda, MD; and establishes a school of operational medicine in 1998.





# Dr. Heimlich's First Career

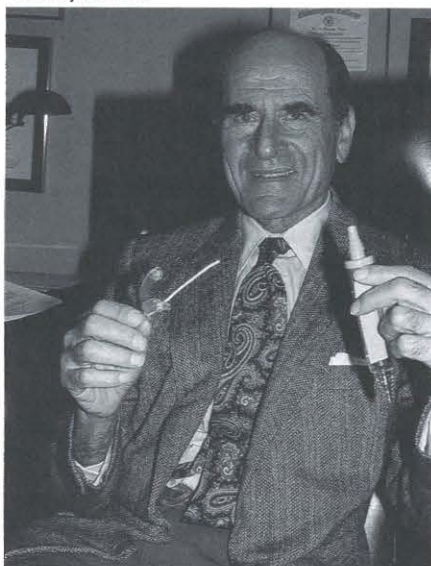
One of the lesser known naval activities of World War II took place in the CBI (China-Burma-India) theater. In 1943 the government of Chiang Kai-shek, in cooperation with the U.S. Navy, organized what became known as the Sino-American Cooperative Organization (SACO). Led by CDR Milton "Mary" Miles, USN, and GENTai Li, SACO had several aims.\* Because weather affecting the Pacific Fleet originated in China, planners desperately needed reliable meteorological information. There was also a pressing need for accurate intelligence regarding Japanese fleet movements. The SACO agreement took care of these needs. Navy personnel flown from India over the "Hump" into China set up and monitored weather stations in far western China. In eastern China, a network of coast watchers reported Japanese fleet movements.

A strong Navy presence in central China, where the Chinese govern-

\*Miles had gotten this nickname at the Naval Academy by fellow cadets, whose favorite pin-up girl was Mary Miles Minter, a motion picture actress of silent films.

Tai Li was Chiang Kai-shek's powerful head of the secret police, and known as the "Himmler" of China. He ruthlessly carried out the Generalissimo's instructions, eliminated political opposition, and reserved for himself the fruits of illegal smuggling operations.

Photo by the Editor



Dr. Heimlich holds two of his inventions, the Micro Trach on the left, and the Heimlich Chest Valve.

ment had fled, had another vital benefit—arming and training a Chinese guerrilla army to fight the Japanese invaders.

LTJG Henry Heimlich, MC, USNR, witnessed many of these events as a medical officer assigned to U.S. Naval Group China. Navy Medicine recently spoke to him at the Heimlich Institute in Cincinnati, OH, about his World War II experiences and his life since, especially about the "maneuver" that made his name a household word throughout the world.

**Why did you decide you wanted to be a physician?**

It was the antisemitism of the times. If you were Jewish in this country, you could start your own business but you could not get a corporate or a government job. The only thing you could do that had real prestige was to become a doctor. Perhaps that fact alone made me reach out to other people.

**How did you get involved with the Navy?**

Some time after Pearl Harbor I became an ensign in the Naval Reserve. We were not paid but were allowed to continue medical school. In 1943 they started the V-12 Program for attracting and educating doctors, so I resigned as an ensign and became a V-12 midshipman.

At graduation in December 1943, I went into the inactive Naval Reserve without pay in order to take a 9-month internship. After finishing a surgical internship at Boston City Hospital in September, I went on active duty. My first orders were to the Chelsea Naval Hospital on October 10, 1944. In December I was ordered to the Chief of Naval Operations in Washington, DC, and reported in during January 1945.

Shortly after arriving in Washington, I was taken into a room with two officers. "All we can tell you about this duty is that it is voluntary, and it's



prolonged extra hazardous overseas duty in China.” And that’s all I knew until I got to China. I remember thinking that if I was going to get it, I’d rather see China than some landing beach. So I took the assignment. About a month later I received orders to proceed to U.S. Naval Group China. I traveled with the CO of my group, George Basham and 100 enlisted men. We took a train to San Pedro, CA, where on February 26th we left aboard the USS *Admiral W.S. Benson* (AP-120). I got sick as a dog for 2 days right after we left San Pedro.

**Did you travel in convoy from California?**

No, we traveled alone. Our ship was very fast compared to submarines. We arrived in Bombay 29 March 1945, boarded a train for a week, and reported to the commander, India unit of SACO in Calcutta on 2 April.

**By this time, did you know any more about your mission than you heard in that room back in Washington?**

No, not a word. I stayed in Calcutta for about 2 weeks and then received orders to proceed to U.S. Naval Group China via a CNAC (Chinese National Airways Corporation) plane over the “Hump” [Himalayas].

**As you proceeded on this journey to China, from time to time you would receive new orders. Was it a step-by-step procedure?**

Yes, I never knew what was coming next. On 17 April I was designated an official courier for the purpose of transporting official U.S. Navy communications from Calcutta to Commander U.S. Naval Group China in Chungking. Making me a courier allowed me to carry mail and materials on the plane. I wore a half-dozen

.45 pistols they needed in China. From that point on, I traveled in a gray or khaki uniform without insignia.

The CNAC was flying old C-47s over the Hump. There were holes in the windows to fire through if we were attacked. We had to climb over 17,000 feet to get over the mountains. When we got to a certain height I began gasping for breath and then passed out, as we all did. Only the pilot and copilot had oxygen. I got to see a little of the Himalayas before I passed out, and the next thing I knew my eyes suddenly popped open and there were rice paddies all around on the mountains.

Eventually, I reached SACO Headquarters in Chungking. Again I was taken to a room with two officers and they explained what SACO was all about. The Sino-American Cooperative Organization was a pact between the Chinese Nationalist government of Chiang Kai-shek and the Navy. In the pact, the U.S. was to get weather information, intelligence information, aid in direction finding, and sabotage of Japanese targets in return for providing guns, medicines and medical care, supplies, and training for Chinese guerrillas. Weather information was then radioed to Chungking from several camps and relayed to our ships in the Pacific. We also had coast watchers who would radio that a tanker had just departed from Shanghai, for example. Then our subs could be in a position to intercept it.

**What was your specific role?**

I had come to China to replace a doctor at one of the Navy camps in the Gobi Desert, Camp Four in Inner Mongolia. He had broken a tooth in a basketball game. The Americans and Chinese in these camps would play fierce basketball games. A Nationalist general, Fu Tso Yi, in our area, had an army of 100,000. I was

to build him a medical corps.

**What was going on in Mongolia?**

I didn’t know until I got there. I got my orders to go to Naval Unit 4 on 21 April. I got another CNAC flight from Chungking to Lanchow in northwest China. While I was in Lanchow, I met a LT Angus A. MacInnis. He was a weatherman and was going to a place further west, Penglian, to set up a weather station. We had an old Chinese-owned Dodge truck and a Chinese driver. The truck broke down and the driver took the engine completely apart, put it back together and then it worked.

**When did you get to Mongolia?**

Before reaching Camp Four we crossed the Ordos Desert. We made it to Mongolia on 4 June and initially visited a Spanish missionary. They cooked marvelous food, had great wine, and danced the fandango.

**What did you see at Camp Four?**

The town was Shempa in Suiyan Province, but it has a new name now and is also part of Inner Mongolia. It was a walled town built in adobe style.

My group originally had 12 members, thus our code-name was “The Apostles.” But it grew to about 20 people, including a chaplain named LaSor. I reported to the CO, a Marine captain named Hilliard. He sent me to the doctor’s room, and then I was assigned a horse.

**What kind of medical equipment did you have?**

The doctor I replaced left all his equipment. This is what we considered a 2-year supply. We had sulfa drugs, but no penicillin. I also had a steam sterilizer built from a 5-gallon oil tin, and had a still made to produce distilled water.

**LTJG Heimlich and a Chinese soldier pose for a snapshot on the Shanghai waterfront.**

The local coffin maker built me an operating table out of wood with iron hinges and ratchets so I could raise and lower the head and feet.

**What were the other functions of the camp?**

A couple of our people were training the Chinese guerrillas. There were 250 Nationalist Chinese guerrillas under two generals, Chiao and Liu. But they were mostly fighting puppets of the Japanese.

**Did you treat just Americans or did you treat some of the locals?**

Both. One evening, shortly after I arrived, an 18-year-old girl was carried in with a distended abdomen and severe dehydration. I didn't know whether it was a tumor or an infection. But I knew she needed surgery. As we didn't have electricity, I couldn't start a major surgery so close to nightfall.

If she had died our mission would have been in jeopardy. The Chinese did not really trust Western medicine and we would lose face. I could have let her die, but instead I told her dad I would operate if she lived through the night. I distilled some water, added salt tablets, and gave the saline solution subcutaneously. The next morning she was somewhat improved.

I sterilized instruments and my corpsman assisted me. I gave her a spinal and gingerly cut into her abdomen. As soon as I hit the peritoneum, green and yellow pus gushed all over us. I screamed with joy since this was the only thing I could handle. She had a pelvic abscess. I cleaned it out, left it open, and put drains in. She recovered.

From then on, I was mobbed by



hundreds of patients. Everyone came to see me. I saw a lot of syphilis and many other diseases and afflictions that most American doctors would not see. It was one of the last areas of plague, both bubonic and pneumonic. It was a very interesting medical experience.

**So the war ended while you were at Camp Four?**

Correct. We heard the report on the Armed Forces Radio that the first atomic bomb was dropped. We all felt it was very promising. About a week later, we got a message that was the first ever not in code: "It's Over." We screamed and yelled. The Chinese were troubled; their future was in jeopardy.

**How long did you stay at Camp Four after the end of the war?**

About 2 months. On 1 November, I left for Shanghai where I spent 6 months on the hospital ship *Repose*. In October one of the Chinese soldiers got shot in the chest accidentally during training. The first night I just put on a bandage because the light was really bad. Chest surgery was in its infancy and I had surely never opened a chest before. It was a through-and-through wound and by morning he was near death. Therefore, I decided to operate. I found a huge hole from the entrance wound to exit wound, 5 to 6 inches. I found a 3-inch hole in one of his lungs and sutured it up. But closing was basically impossible due to massive



amounts of torn tissues. Unfortunately, the patient expired during final closure. I always felt guilty; should I have done anything else?

In the early 1960's, I developed the Heimlich chest drain valve. The idea came to me while writing *Post Operative Care in Thoracic Surgery* as I was describing underwater drainage bottles. That cumbersome method drains air and fluid out of the chest and doesn't let the air back in. All this is is a valve. So I just began considering different types of valves. The flutter valve seemed to be the best solution. It's so simple that my first prototype was built from a Japanese

noisemaker—the Bronx Cheer. Basically, you put standard chest drainage tubing through the bullet wound and pack dressing around it and the tube connects to the valve. Air, blood, and fluid can come out, but nothing can go in so the lung doesn't collapse.

I presented the valve at the AMA meeting in 1963. Four naval officers came over and asked for six valves to take to Vietnam the next day. Although they were then handmade by Becton Dickenson (BD) and in short supply, we got six of them. A week later I got a telegram saying the valve was a lifesaving item and they had to have 100 immediately. The company

couldn't put them out that fast.

I couldn't get a patent on this; after all you can't patent a valve. In the late 1960's, the Patent Office called me and said they appreciated what I had done for the country and drew up a special patent for the valve. There are now a quarter of a million used a year; it costs 5 dollars to save a life. I met a doctor at a meeting who was at Hill 881 (a ferocious Vietnam battle). He said 34 of our men were shot in the chest, 32 made it off the hill alive with Heimlich Valves.

I feel I've paid that Chinese soldier back. Maybe if I had known the drainage techniques then, he'd have



Chiang Kai-shek's troops await transportation to the front to do battle with the Japanese invaders.

**Below:** Following his stint in Inner Mongolia, Dr. Heimlich was assigned to the hospital ship USS *Repose* (AH-16) moored in Shanghai. **Right:** During his service in China, Dr. Heimlich and other Navy personnel frequently encountered airfields like this.



lived. He was always in my mind, therefore the chest valve.

**This can be used for any collapsed lung?**

Yes, it has many uses besides treating wounds. It is for postop drainage and, in pneumothorax, the beauty is that a patient can go home with valve drainage and doesn't have to remain in a hospital.

**Getting back to the 1940's, what was your next assignment once you got back from China?**

I checked in in San Francisco. I



was in a terrible position at that time. I had run out of money. I had a month's leave and went by train to visit my relatives across the country on my way home to New York. After that I had one more month of active duty, so I served on a tug boat in New York City.

**What did you do after you left the Navy?**

I had to fight like mad to get a residency in surgery. I would hear the

same thing everywhere, "We're sorry doctor, but we have to take our old doctors back first." But with persistence and luck I was able to land one at Mount Sinai Hospital in New York.

**You're a household name because of the Heimlich Maneuver. How did the idea germinate in your mind?**

I had read in *The New York Times Magazine* that the sixth leading cause of accidental death was choking on



food, several thousand every year. I had always thought it was a rare occurrence. I remember reading about famous people dying from this, such as Ethel Kennedy's sister and Tommy Dorsey.

I began looking into it and discovered the Red Cross was telling people the wrong thing—to use back-slapping and putting fingers in the throat. These methods push the choking object deeper into the airway. The only other alternative was a tracheotomy, which can be dangerous to perform unless done by a trained surgeon. Actually, there was a report of a radiologist cutting his wife's coronary and killing her while trying to do a trach when she was choking.

I did the first experiments on dogs. I took an endotracheal tube, blocked off the end, inflated the cuff, and put it into the dog's larynx. I tried different ways of pressing on the chest without success. So I pressed under the diaphragm and the tube was expelled every time.

We then practiced some maneuvers on each other to measure the pressure and the flow. Of course, it was the flow of air not the pressure that pushes the food out. The flow always provides the kinetic energy to the object in the direction toward the mouth.

The trick was to find a simple method anyone could do. You will die in 4 minutes so you don't have time to wait for an ambulance. Actually, a 6 year old saved a 5 year old a few years later. This told me you can't make it any simpler than that.

An article on the Maneuver first appeared in *Emergency Medicine* in June 1974. A syndicated writer in Chicago picked up the story. The first life was saved within a week in Seattle. A restaurateur read the article and did the maneuver on a choking woman. The maneuver was origi-

nally called the subdiaphragmatic pressure. Two months later, editors of *JAMA* named it the Heimlich Maneuver because it had saved many lives.

Oh, I ran into terrible opposition from the Red Cross. It showed they had been wrong. The doctors who advised them fought it bitterly. For 12 1/2 years the Red Cross just let people die, continuing backslaps, rather than admit they were wrong.

I'm going through the same stuff with drowning and the Heimlich Maneuver. You die of drowning because your lungs fill with water, except for 10 percent who die of heart attacks or injuries before they breathe in. You can't get air in, if the lungs are full of water. The Heimlich Maneuver has been shown, quite accidentally, to empty the lungs. It has the same effect on gas and liquids. Credit goes to Dr. Victor Esch, former chief surgeon, Washington, DC, Fire Department. In 1974, a lifeguard pulled a man out of the water at Rehoboth Beach and declared the victim dead. Dr. Esch performed the Heimlich Maneuver on the man, water gushed from the lungs, and the victim instantly recovered. Numerous similar saves with the Maneuver have since been reported.

Additionally, the Maneuver seems to jump start breathing by pushing up on the diaphragm. This also massages the heart. If the victim has been under water a long time and does not recover after the Maneuver empties the lungs, then it is worthwhile to commence mouth-to-mouth ventilation. But you waste valuable time if you do it while there's water in the lungs. The Patrick Study found that of drowning victims who were unconscious, not breathing, and without a pulse, 87 percent of those treated with the Heimlich Maneuver survived. On the other hand, 28 percent survived with CPR used without the Maneuver. Since 1986,

*JAMA* guidelines, which the Red Cross claims to follow, recommend using the Heimlich Maneuver for drowning. We have found, however, that in Red Cross courses no one has been taught to use the Maneuver nor is it in their manuals. Five hundred kids a year died unnecessarily during these 9 years. The major lifeguard organizations in the world and medical associations have adopted the Heimlich Maneuver for drowning. When it becomes common knowledge to use the Heimlich Maneuver in drowning cases, a thousand victims every year will survive who now die after CPR.

I've faced a lot of resistance. The doctors fight against the change. They get along fine with what they have already. My saying is, "If all your peers understand what you've done, you haven't been creative."

### **I want to ask you about the Heimlich Institute. How did it all come about?**

After I finished my residency, I was an attending physician in three or four hospitals. But my practice developed slowly for a young surgeon. Eventually, I grew tired of this and New York and became the first full-time director of surgery at the Jewish Hospital in Cincinnati.

Previously, I had developed the field of esophagus surgery. My specialty resulted from developing the reversed gastric tube operation for esophageal replacement. Previous attempts at replacing the esophagus out of the upper stomach and intestine were not very successful. They always got reflex esophagitis. In December of 1950, I read a paper done on dogs where they had resected the upper stomach and joined the lower section, the antrum, to the esophagus. The antrum of the stomach does not secrete acid as the cardia does. They could give the dogs acid stimulation

# save a DROWNING victim

## HEIMLICH MANEUVER<sup>®</sup>

**You can't get air into the lungs until you get the water out!**



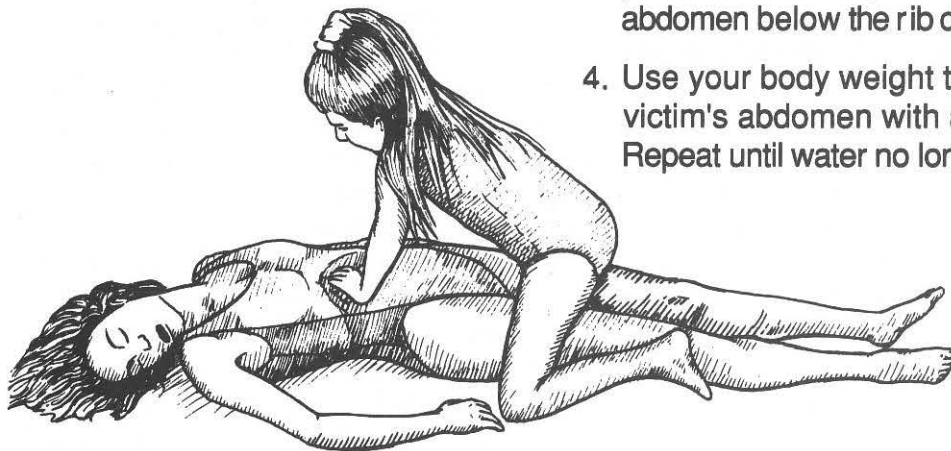
### **STANDING IN A POOL OR SHALLOW WATER**

Buoyancy Of Water Lightens Victim's Weight

1. Stand behind the victim and wrap your arms around victim's waist.
2. Make a fist and place the thumb side of your fist against the victim's abdomen, below the rib cage and above the navel.
3. Grasp your fist with your other hand and press into the victim's abdomen with a quick upward thrust.
4. Repeat until water no longer flows from mouth.

### **VICTIM LYING ON GROUND**

1. Place victim on back. Turn face to one side to allow water to drain from mouth.
2. Facing victim, kneel astride victim's hips.
3. With one of your hands on top of the other, place the heel of your bottom hand on the abdomen below the rib cage and above the navel.
4. Use your body weight to press into the victim's abdomen with a quick upward thrust. Repeat until water no longer flows from mouth.



*If the Victim has not recovered, proceed with CPR. The Victim should see a physician immediately after rescue.*

Heimlich Maneuver is a registered service mark of Heimlich Institute Foundation, Inc. which reserves all rights to its use.

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Heimlich Institute Foundation, Inc.  
P.O. Box 8858 Cincinnati, Ohio 45208



but they would not get esophagitis. My concept was that if you could make a tube out of the greater curvature of the stomach and swing it upward, you would be bringing the antrum, which doesn't secrete acid, up to the esophagus or the pharynx. I figured out how to get the blood supply up as well so the gastric tube would survive and would grow in children.

The operation persists in recent textbooks and in its use. Patients established the nonprofit Dysphagia Foundation, which evolved into the Heimlich Institute Foundation.

**What else have you and the Institute pursued over the years?**

I also developed the MicroTrach.

People taking oxygen are always gasping for air when oxygen is delivered through nasal tubes. Why? Because they have to suck air from the nose down to the lungs. Inserting a tiny tube into the trachea under local anesthesia jets oxygen into the lungs, and patients instantly breathe normally. With nasal prongs, you waste up to half of the oxygen back out the mouth and nose. With this transtracheal tube, the air goes directly to the lungs. This also means the tank will last longer or it can be a much smaller tank. Therefore, the people are not tied down to a big tank at home and can get up and about.

**What are you presently working on?**

Malariotherapy. Antibiotics do not penetrate the blood/brain barrier. For 60 years, *P. vivax* malaria was injected into neurosyphilis patients; the malaria was treated and cured after 2-3 weeks. The U.S. Public Health Service provided malaria blood to treat successfully tens of thousands of patients. In 1975 malariotherapy was discontinued because neurosyphilis had been eradicated. Malaria stimulates the immune system to produce interleukins and interferons, therefore, we are researching malariotherapy in HIV+ patients. Preliminary results show an increase of immune cells. Oh, yes—thanks to my 50-year relationship started in the U.S. Navy in the Gobi Desert, research is being carried out in China.—JKH

## THE FAR SIDE

By GARY LARSON



Fortunately for Sparky, Zeke knew the famous "Rex maneuver."

# Maximizing the Mission of Medical Readiness in a Joint Environment: A Systems Model

CDR Mary S. Savitsky, NC, USN  
CDR Diane M. LeDonne, NC, USN

**N**o matter where we serve in Navy medicine, it's important that we understand how changes in the world today influence what happens to us in the future. It's equally important that we can personally relate to the present and future of the Military Health Services System (MHSS) of which Navy medicine is a part.

This article will describe where Navy medicine is going, the vision; the global perspective of the MHSS, and how the pieces of that system fit together; and how each of us personally fit in, the role we play in a *system of care that maximizes the medical readiness mission*.

## Future of Navy Medicine

To begin, last fall, RADM William Rowley, MC, charged the Plans, Analysis and Evaluation (MED-08) staff to look at, and make sense of all the things happening in and around

Navy medicine, things such as force downsizing, imperatives of *Forward From the Sea*, capitated budgeting, TRICARE, impending Base Realignment and Closure Commission (BRAC) recommendations, Navy downsizing, Department of Defense Commission on Roles and Missions of the Armed Forces, evolution of telemedicine, the implementation of the Total Health Care Support Readiness Requirements (THCSRR), and the introduction of Lead Agents, to name a few.

This seemed to be the right place for the work to be done since MED-08's job is to ensure a "systems approach" to planning activities, while integrating the analysis and evaluation of policies and proposals into the overall plan for Navy medicine.

Three predominant themes directed the work of MED-08; readiness, TRICARE, and force downsizing.

## Readiness

The Department of Defense definition provided a departure point for MED-08: "*Readiness is the ability to mobilize, deploy and sustain field medical services for any operation requiring military services; to maintain and project the continuum of health care resources required to provide for the health of the force; and to operate in conjunction with beneficiary health care.*"

Medical readiness then is not only keeping medical department personnel clinically ready, but keeping them ready to fulfill their operational role as well, such as a member of a fleet hospital. It also means keeping the active duty "line" servicemembers healthy and ready to deploy. This includes health and wellness programs (continuum of health care resources). The "platform" for this training can be anything from a shore-based clinic to an overseas hospital, to a large



tertiary care facility, such as Naval Medical Center, San Diego, CA.

## TRICARE

The Department of Defense (DOD) initiative to improve access to quality care while controlling health care costs was enacted in January 1992, then known as the Coordinated Care Program. This program, now called TRICARE, represents a version of managed care which has as its common theme, the application of standardized business practices. This includes such things as utilization management, patient cost sharing, and capitation while attempting to ensure the coordination of efficient, effective, and comprehensive services across the health care continuum. TRICARE, in essence, is the peacetime, shore-based care that the active duty servicemember and family members use to receive care. TRICARE also provides the system which allows us to "operate in conjunction with beneficiary health care," as described above under medical readiness. TRICARE often includes a

cooperative resource sharing relationship with other federal services enhancing "jointness" through Lead Agent organizations.

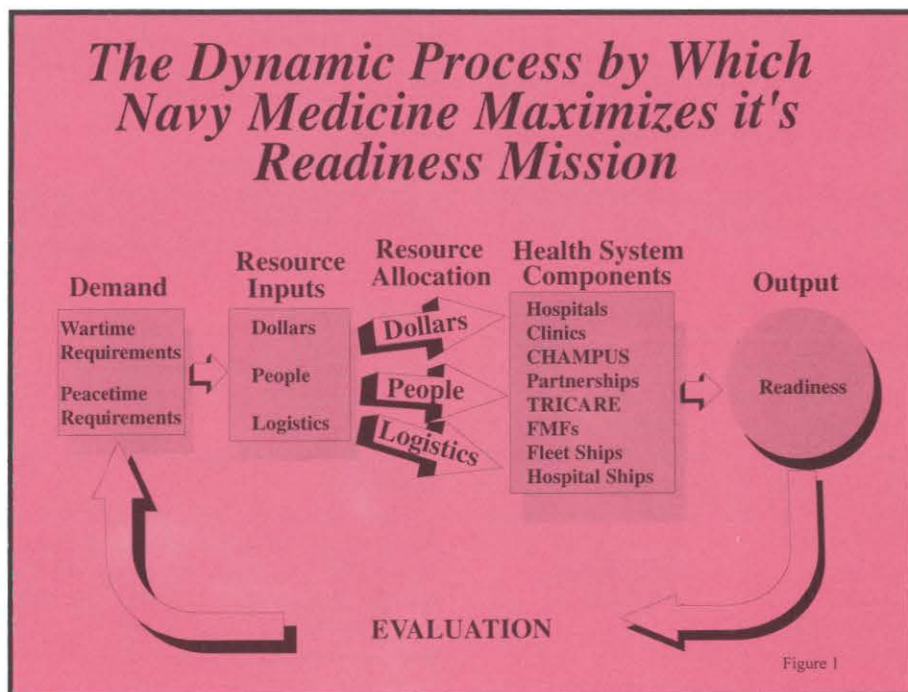
## Force Downsizing

The military is an exceptionally large "corporation" and is responsible for the health care of almost 9 million people. Questions regarding the provision of health care for these people prompted the start of the coordinated care program, and limited resources and the end of the Cold War led to force downsizing in all three services.

The most intense scrutiny of resources dedicated to providing health care in the MHSS is at the congressional level. It seems that the more resources devoted to health care, the more that are needed. Yet to arrive at the "rightsize," an organization requires an accurate determination and projection of the manpower requirements to meet the mission.

Navy medicine arrives at the "rightsize" based on the number of active duty medical personnel re-

quired to meet *both* the wartime *and* the day-to-day operational requirements of the fleet and Fleet Marine Force. *Wartime requirements* are based on health care for two Major Regional Conflicts (hospital ships and fleet hospitals), medical staff assigned to fleet/FMF units, plus maintaining OCONUS and isolated CONUS facilities, and headquarters, research, and training staffs. Health care in support of the *day-to-day operational mission* during peacetime includes medical personnel assigned to deployable fleet/FMF units, OCONUS and isolated CONUS facilities, and other headquarters-type units, plus a rotation base to ensure all personnel have the opportunity to return to CONUS for skills maintenance and training. The combination of these two requirements in a "union" (i.e., no double-counting) yields the Medical Operational Support Requirement (MOSR). To arrive at the THCSR, a "sustainment" piece is added, which includes billets in the training pipeline to ensure fully trained medical personnel are ready to re-





## Definitions

### BRAC (Defense Base Closure and Realignment Commission)

Closure and realignment of military installations inside the United States due to continuing budget constraints mandated by Congress along with the changing national security requirements (Commission letter to the President, July 1993).

### Capitation

The per capita payment for providing a specific menu of health services to a defined population over a set period of time. Fee-for-service/prepaid medical groups usually receive, in advance, a negotiated monthly payment from the HMO. This payment is the same regardless of the amount of service rendered by the group (*Medical Group Management Association Journal*, September 1994).

### Capitation in the Navy Medical Department

Using current knowledge of budgeting and capitation, facilities are allocated resources based upon population and category (I, IIa, IIb, III). Performance is measured through monitoring changes in the capitated rate.

### Commission on Roles and Missions of the Armed Forces

Congressionally mandated commission whose role is to examine multiple medical and nonmedical issues to look for opportunities to develop more efficient methods to accomplish the job. One issue is how should DOD streamline medical readiness while preserving health care benefits in the post-cold war environment (CNO Brief).

### Force Downsizing

Congressionally mandated reductions in active duty force numbers that will drive analysis of medical assets requirements and probable reductions in medical end strengths and realignment of priorities and resources.

### Forward From the Sea

Updates and expands the strategic concept to address specifically the unique contributions of naval expeditionary forces in peacetime operations, responding to crises, and in regional conflict...amplifies the scope of our strategic concept, while confirming the course and speed for the naval services as defined in the original document (White Paper, September 1994).

### Lead Agent/Regionalization

This is known as "DOD TRICARE." Health care will be managed in CONUS (including Hawaii) by the establishment of 12 Health Service Regions. Each region will have a major tertiary hospital designated as the Lead Agent for the region. The Lead Agent is responsible for integrating the business plans of its regional MTFs into a coordinated health care plan for the region as a whole. Additionally, the Lead Agent oversees the region's CHAMPUS expenditures through the Managed Care Support (MCS) contract. The regions are:

Region	Lead Agent	MCS Contract
1	National Capital (Bethesda, Walter Reed, Malcolm Grow)	May 1997

2	Portsmouth	May 1997
3	Eisenhower	May 1996
4	Keesler	May 1996
5	Wright-Patterson	May 1997
6	Wilford Hall	November 1995
7	Beaumont	November 1996
8	Fitzsimons	November 1996
9	San Diego	February 1995
10	David Grant	February 1995
11	Madigan	March 1995
12	Tripler	February 1995

### Managed Care

Any system that manages the delivery of health care in such a way that the cost is controlled. The actual design of a cost controlled/effective health care delivery system will take various forms dependent on numerous factors which may have an effect on the population you are trying to serve (Kongstvedt, *The Managed Health Care Handbook*).

### Managed Care Support Contracts

These will provide the nondirect care in each of our 12 Health Service Regions. The Lead Agent in each region will oversee the expenditure of CHAMPUS dollars through these MCS contract. Under these contracts, beneficiaries will be able to choose from three options—standard CHAMPUS, a PPO option, and an HMO option.

### Medical Technology and Information Technology

Technological advancements that impact on health care to include: telemedicine (long distance clinical consultation through computers/imaging devices; technological enhancements to care to reduce inpatient days and decrease resource use (such as laparoscopic surgery); information systems (such as CHCS and DMIS) that provide timely patient care data and automate some clinical coordination functions thus enabling planners to more efficiently allocate resources.

### Operational Requirements

Active duty medical manpower to support the fleet, FMF, and OCONUS MTFs/DTFs on a daily basis (Weber, *The THCSRR Model, Navy Medicine*, September-October 1994).

### Systems Model

A model for analytical approach to problem solving that emphasizes the relationship, interdependency and subtle cause-and-effect relationship of all parts to the whole as a dynamic process.

### THCSRR Model (Total Health Care Support Readiness Requirements)

Model that allows Navy medicine to accurately determine and project its active duty manpower readiness requirements to the subspecialty level based on the two readiness missions of Navy medicine: wartime and day-to-day operational support to the fleet and Fleet Marine Force (Weber, *The THCSRR Model, Navy Medicine*, September-October 1994).



place MOSR assets lost through attrition.

### Fitting the Pieces Together

The wartime, operational, and peacetime requirements are not separate and unique, they don't exist in isolation, rather they *are* the pieces of the system.

The model, Figure 1, represents the relationships between the "requirements," the resources allocated, and the "system of care" of which TRICARE is a part. The end product, Readiness, is achieved only as a result of allocating resources in concert with the THCSRR. The major components of the model include:

**Demand:** Determined wartime military medical care requirements; includes the health care (health promotion, health restoration, casualty triage, and treatment/stability) support that will be required in war scenarios, translated into people needed (providers, support and administrative), supplies, equipment, dollars, space and training resources, and peacetime requirements, including OCONUS sites.

**Resource Allocation:** The process of identifying the distribution or earmarking of people, dollars, and other support within the system to meet the mission.

**System of Care:** The multiple *interdependent* elements that work together to achieve a common purpose. This includes health care providers and support people, and facilities in the direct care system and private sector, hospital ships, NAVCARE clinics, etc.

**Readiness:** This is the state of being immediately available and capable of performing the mission.

### What Part Do You Play?

There's an old saying, where you sit determines where you stand. This

means when we stand each of us will see things differently, yet it's most important to understand the mission and vision of our organization in order to work adequately toward the common goal.

What are the goals of Navy medicine? Who sets these goals? The corporate body for Navy medicine is the Surgeon General, VADM Donald Hagen, and his "flag officers" both active and reserve. This group convenes twice a year to conduct the corporate work of setting the vision and goals for Navy medicine.

In the fall of 1994 the corporate body looked at those things described earlier which were influencing our future. They identified realistic goals for Navy medicine and provided the strategic direction (vision). The goals were provided to MED-08 to codify, elaborate, and convert into programming. In a style described by Henry Mintzberg, the planners take the strategic decisions, clean them up, package them neatly so the corporate body can tell everyone about them and get things going. (1)

The "flags" ensured that goals for Navy medicine send a message to our customers and to you, that the health

care system we support and work in is coordinated. This means we work with other federal agencies and the private sector, that quality of care is ensured no matter what the place of care, emphasis is placed on "jointness" and most importantly, quality of life and *caring* for our people are at the top of the list (Table 1). Now, whether you're on a ship, working at headquarters, a division officer in a tertiary care facility, or a laboratory technician in a free standing clinic, you know what your corporate leaders are working toward. Understanding your place in this system is crucial to working toward our Medical Readiness mission in a joint environment.

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CDR Savitsky is Division Director, Analysis and Evaluations, Bureau of Medicine and Surgery, Washington, DC. CDR LeDonne is Deputy Director, Strategic Planning, Bureau of Medicine and Surgery, Washington, DC.

**Table 1**  
**Goals/Guiding Strategies of Navy Medicine**

- NAVMED recruits a high quality seamless force, trains them for excellence and creates an environment to retain the best personnel to accomplish the mission.
- NAVMED maintains and enhances the capability to respond to ever-changing wartime, peacetime, and contingency operational requirements.
- NAVMED assures that all eligible beneficiaries have access to the entitled health benefit in an integrated health care system.
- NAVMED empowers all members and shepherds higher headquarters toward optimal resource stewardship.
- NAVMED will be a leader in technology integration.





# Navy Medicine

## May-June 1945

LCDR George Martin, USNR

By April, 1945 German resistance in the European Campaign was on the verge of collapse, but the Navy Medical Department's work was not yet done. The empire of Japan continued to defiantly resist American advances across the Pacific. The Navy Medical Department would meet its most monumental challenge at the battle of Okinawa, the largest amphibious invasion of the Pacific campaign.

Three years of combat experience had given the Navy an idea of what to expect against the patented and fanatical Japanese defenses. Careful planning provided for the care of both military and civilian sick and wounded, evacuation of the sick and wounded, sanitation, and medical logistics.(1)

In order to bolster first-aid capabilities extra corpsmen were detailed to each line battalion, and selected riflemen were trained in basic medical care and assigned as litter bearers to help evacuate the wounded to rear area aid stations. Two evacuation hospitals were to be attached to the Third Amphibious Corps. From there casualties could be moved to one of six hospital ships or specially

equipped APHs and APAs for transfer to the Marianas and points in the United States.(2) During May and June the Navy commissioned five new hospital ships of the Haven class to help fulfill the continuing need for casualty treatment and evacuation,

*Haven* (AH-12), *Benevolence* (AH-13), *Consolation* (AH-15), *Repose* (AH-16), and *Sanctuary* (AH-17).

Marine Corps units learned the value of sanitation, and sanitary squads operated with each combat unit in order to retard the ill effects of

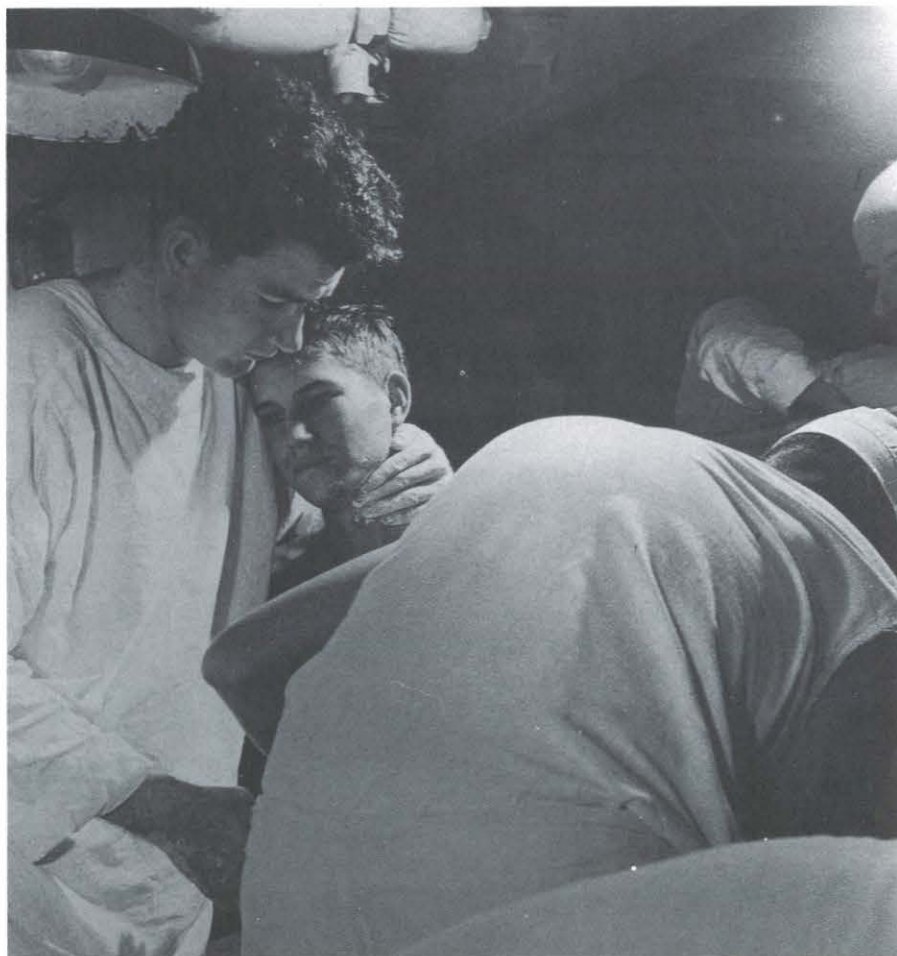


Photo by LT Victor Jorgensen, USNR

Doctors and corpsmen treat Okinawa casualties on hospital ship *Solace*, May 1945.



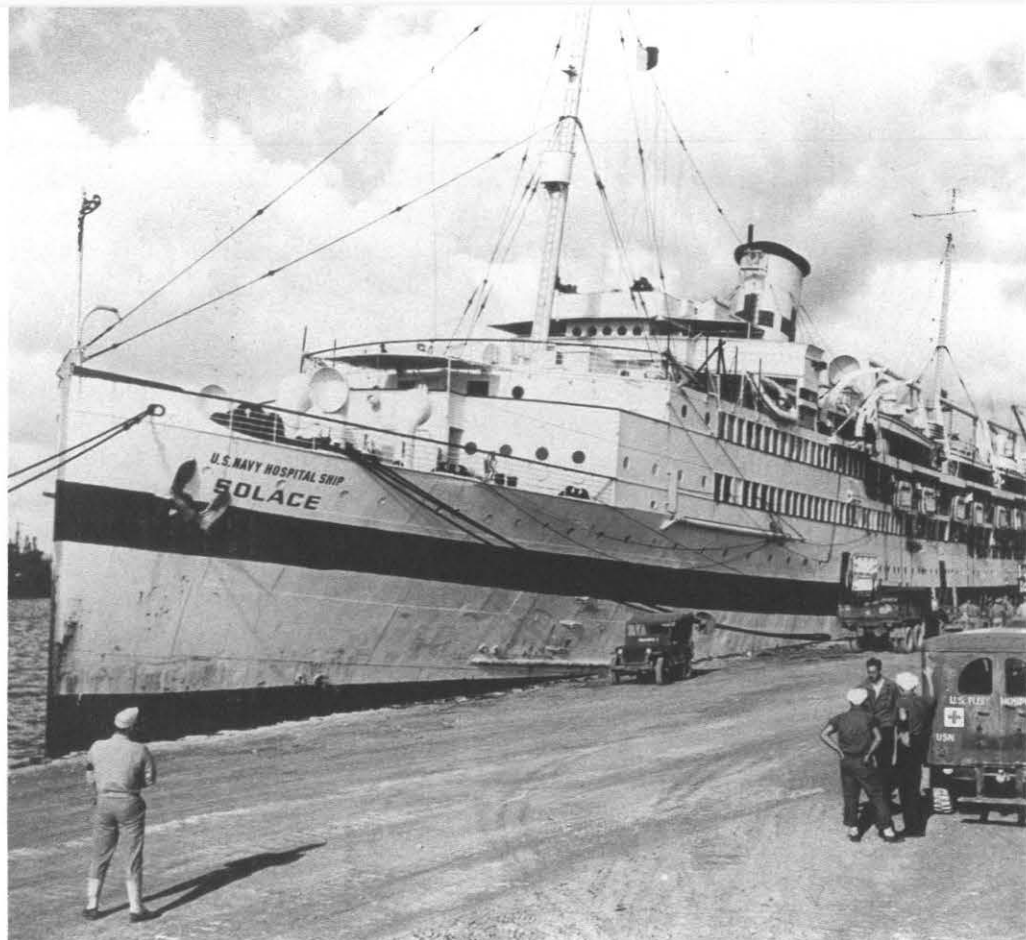
USS *Solace* (AH-5) offloading Okinawa casualties at Guam.

malaria and other anticipated ailments.(3) Fortunately, in the temperate climate of Okinawa tropical diseases did not proliferate as they had on other Pacific islands. In fact, foot soldiers reported the island's cooler climate refreshing and somewhat invigorating. Only 1,200 cases of disease had to be evacuated in the course of the battle.(4)

The medical situation was further ameliorated by an efficient system of blood delivery which had been perfected by the Naval Air Transport Service.(5) The early capture of the airfields at Yonton and Kadena enabled blood to be flown in from Guam as well as to provide for the aerial medevac of the wounded. Additionally, surgery could be performed near the front lines by the use of a mobile surgical trailer.(6)

The uncontested landings of 1 April were part of the overall Japanese strategy to avoid casualties defending the beach against overwhelming Allied firepower. A system of defense in depth, especially in the southern portion of the island, would permit the 100,000-man-strong Japanese 32nd Army under General Ushijima to fight a protracted battle that would put both the attacking amphibious forces and naval armada at risk. The fatalist philosophy of the defenders is best illustrated by the slogan: One plane for one warship; one boat for one ship; one man for 10 of the enemy or 1 tank. (7)

By 19 April soldiers and marines of the U.S. Tenth Army under LGEN Buckner were engaged in a fierce battle along a fortified front which



Photos from BUMED Archives

represented the outer ring of the Shuri Line. This fighting contrasted dramatically with the unopposed landings and initial rapid advances of the previous weeks. The Shuri defenses were deeply dug into the limestone cliffs and boasted mutually supporting positions as well as a wealth of artillery of various calibers. As the battle dragged on, American casualties mounted. This delay in securing the island caused great consternation among the naval commanders since the fleet of almost 1,600 ships was exposed to heavy enemy air attacks. There developed a less than cordial scene when ADM Nimitz visited Okinawa on 23 April and threatened to have LGEN Buckner relieved if better progress was not forthcoming.

The most damage from the Japanese attacks came from operation Ten-Go (Heavenly Operation) which employed mass deployment of the

fearsome kamikaze. The use of the kamikaze was not new. As early as 1943 Japanese army and navy pilots had made individual, uncoordinated suicide attacks against American ships. By the Battle of Leyte Gulf in October 1944, suicide planes had become an instrument of Japanese military policy.(8) These attacks against the allied fleet conformed perfectly to the Japanese strategy of destroying high value targets and inflicting massive numbers of casualties, thereby delaying the invasion of Japan. Loss of American aircraft carriers and logistics ships would set back the timetable and allow the Japanese home defenses to better prepare for invasion.(9)

Young pilots with only a modicum of flying hours and no combat experience were usually chosen to fly the suicide missions. More seasoned fliers accompanied the kamikazes as

escorts to protect them from enemy fighters and, in a macabre imitation of "Judas Goats," lead them to their targets.

The surface fleet, the object of both conventional and suicide attacks, had been wisely prepared by a policy that provided for training sailors in first aid. This would prove to be valuable, especially on the larger platforms that could more readily withstand attack and provide for a secure casualty collection area. The smaller warships such as destroyers, especially those on the picket line, were not so fortunate. These ships suffered grievously and often medical care was not forthcoming because the assigned medical personnel were either killed or wounded, the sick bay knocked out, or the ship itself sent to the bottom. An example was the plight of the USS *Morrison* (DD-560) which was hit by four kamikazes in a 10-minute period. Only one wounded man reached a dressing station before the ship sank. The survivors floated on the sea for 2 hours while two out of three corpsmen assigned were either dead or disabled. The remaining corpsmen and the medical officer swam among the 90 survivors providing what little medical attention could be administered.(10)

The kamikaze pilot's inexperience caused many to mistake the picket line destroyers for battleships or even larger platforms and expend themselves accordingly. Japan launched a total of 1,900 kamikaze missions, sinking 38 warships and damaging dozens of others.(11) No ships were immune from attack as witnessed by the incident aboard the hospital ship

*Comfort* (AH-6) which sustained 62 casualties due to a kamikaze.(12) Despite this, hospital ships continued their useful mission of treating the wounded and ferrying them to hospitals in the Marianas.(13)

The most serious suicide attack against an aircraft carrier was the strike on USS *Bunker Hill* (CV-17) which was hit by two kamikazes while 30 fully combat loaded planes sat on deck. Exploding ordinance touched off 12,000 gallons of aviation fuel which resulted in a highly destructive 4-hour fire, costing the lives of 352 men, and putting the carrier out of the war.(14)

Navy policy during the battle was to evacuate the serious shipboard ca-

sualties to platforms that could provide necessary care such as hospital ships, APAs or APHs. This was accomplished by means of transfer whip while under way or the physical handling of litter-borne wounded over the rail from one ship to another while dead in the water.(14)

While the Navy faced its purgatory afloat, the situation on land was becoming more savage by the day. American losses mounted as soldiers and marines assaulted points on the Shuri Line with the deceptive names of Sugar Loaf, Chocolate Drop, Conical Hill, Strawberry Hill, and Sugar Hill. During the course of the battle American forces were informed of two pieces of dramatic news, one



Blood plasma being administered to wounded marine on Okinawa.



tragic and the other joyous. The first was the death of President Franklin Roosevelt on 12 April and the latter the surrender of Nazi Germany on 8 May.

By the end of May monsoon rains which turned contested slopes and roads into a morass exacerbated both the tactical and medical situations. The ground advance began to resemble a World War I battlefield as troops became mired in mud and flooded roads greatly inhibited evacuation of wounded to the rear. Troops lived on a field sodden by rain, part garbage dump and part graveyard. Unburied Japanese bodies decayed, sank in the mud, and became part of a noxious stew. Anyone sliding down the greasy slopes could easily find their pockets full of maggots at the end of the journey. The environment became extremely septic, minor bruises turned into infections and even trench foot make an appearance.(15)

Navy corpsmen suffered staggering casualties; the 1st Marine Division alone counting almost 500. This caused an especially serious situation when their partially trained or untrained comrades were forced to treat them. The 6th Marine Division lost so many corpsmen that in some sectors there was an unofficial agreement that the wounded who could do so would evacuate themselves.(16) Corpsmen heroism is evidenced by the fact that three were awarded the Medal of Honor for their service on Okinawa.

Heavy pressure on the Shuri Line finally convinced GEN Ushijima to withdraw southward to his final defensive positions on the Kiyamu Peninsula.(17) His troops began moving

out on the night of 23 May but were careful to leave behind rear guard elements that continued to slow the American advance. Japanese soldiers too wounded to travel were given lethal injections of morphine or simply left behind to die. The fact that few Japanese surrendered (approximately 6,000 out of the entire garrison) actually relieved the Medical Department from much of the burden of POW care. By the first week of June, U.S. forces had captured only 465 enemy troops while claiming 62,548 killed.(18) It would take 2 more weeks of hard fighting and an additional 2 weeks of "mopping up" operations pitting explosives and flamethrowers against determined pockets of resistance before the battle would finally be over.

During the later stages of the fight, shrapnel from an enemy shellburst killed LGEN Simon Bolivar Buckner, commanding general of the Tenth Army. He was the most senior American officer lost in the entire Pacific campaign. General Ushijima committed ritual suicide (hara-kiri) on 16

June, convinced that he done his duty in service to the Emperor. The so called "mopping up" fighting between 23 and 29 June netted an additional 9,000 enemy dead and 3,800 captured.

American losses at Okinawa were so heavy as to elicit Congressional calls for an investigation into the conduct of the military commanders. Total casualties in the operation numbered over 12,000 killed, 36,000 wounded, and 26,000 non-combat injuries.(19) Navy casualties were tremendous, a total of 9,973 with a ratio of one killed for one wounded as compared to a one to five ratio for the Marine Corps.(20) Navy medicine rose to the challenge by treating and evacuating 25,000 men, 11,000 by air and the rest by hospital ships and other surface transport.(21)

In addition to physical injuries, medical authorities faced the problems of caring for thousands of civilians as well as handling cases of combat fatigue which took their toll on Okinawa. Doctors postulated that the single greatest cause of stress was the



Casualties from USS *Bunker Hill* (CV-17) being treated aboard USS *Wilkes Barre* (CL-103) after kamikaze attack.



May 1945: V-E Day, Okinawa style. A marine observes V-E Day on Okinawa by evacuating a companion wounded by a mortar round.

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accuracy of enemy artillery fire. Those "fatigue" cases diagnosed as exhaustion or anxiety were treated with sedatives, food, and rest and normally were sent back to the line in 24 hours. More serious cases went to "rest camps" located directly behind the firing lines. The theory behind this treatment was that exposure to the sound of the guns would enable soldiers and marines to become more quickly reacclimated to battle. De-

spite this approach, over 3,000 fatigue cases were evacuated as being unrecoverable and because their sickbeds were needed.(22)

The atomic bombing of Japan in August and sudden end of the war precluded the invasion of the Japanese home islands planned for November 1945. As a result, the medical lessons learned on Okinawa would not be applied to any additional battlefields of World War II.

LCDR Martin is special assistant to the Command Historian, Bureau of Medicine and Surgery (09H), Washington, DC 20372-5300.



# **Women's Health in the Operational Forces:**

## **Diagnosis and Management of Lower Abdominal Pain**

CDR Michael John Hughey, MC, USNR

**A**mong the most challenging tasks facing medical providers in operational settings is the care of women with lower abdominal pain. The pain is often distracting to the patient, if not disabling. The potential severity of the problem can range from minimal to the most severe. Further, the diagnostic tools which are often helpful in such cases are frequently not available in these settings.

### **Uncertainty of Diagnosis**

Confronting a female patient with abdominal pain, as a board-certified OB-GYN, practicing in a 600-bed teaching hospital, with ultrasound, MRI scans, and full lab support, I sometimes don't have a clue as to what the problem is. All I can say is "this patient is sick with something."

### **Often you must treat the patient before knowing the diagnosis.**

Sometimes these patients get well before I can figure out the diagnosis. Sometimes these patients get worse and I end up performing surgery and find PID, or endometriosis, or an ovarian cyst or almost any other gynecologic problem. Sometimes I do laparoscopy and find nothing abnormal, but the pain goes away. **The Point is: In clinical gynecology, the diagnosis is often unclear.**

Just because you're unsure of the diagnosis doesn't mean you can't take good care of the patient. Often you must treat the patient before knowing

the diagnosis. **The Second Point is:**

**More important than knowing the correct diagnosis is doing the right thing for the patient.**

To help you take good care of your patient when you are unsure of the diagnosis, I've assembled a few guidelines.

### **Pain**

If the patient has pelvic or abdominal pain or tenderness, placing her on bedrest for a few days will usually help and is never the wrong thing to do. For many of your patients, the pain will simply resolve (although you won't know why).

### **Pain and Fever**

If your patient has a fever (in addition to her pain), I would recommend you give her antibiotics to cover PID. With mild pain and fever, oral antibiotics should work well, so long as they are effective against chlamydia (doxycycline, tetracycline, erythromycin, etc.).

If the fever is high or the pain is moderate to severe, I would favor IV antibiotics (such as clindamycin and gentamicin or cefoxitin or Flagyl and gentamicin) to cover the possibility of pelvic abscess.

### **Chronic Pain**

If there is no fever, but your patient complains of chronic pelvic pain, a course of oral doxycycline is wise.

### **Pregnancy Test**

Any patient complaining of pelvic pain should have a pregnancy test. I am surprised at how often it is positive despite the patient saying "that's impossible."

### **OCPs and Pain**

Most patients complaining of intermittent, chronic pelvic pain will benefit from oral contraceptive pills. OCPs reduce or eliminate most dysmenorrhea and have a favorable influence on other gynecologic problems such as endometriosis, ovarian cysts, and adenomyosis.

When using OCPs to treat chronic pelvic pain, multiphasic OCPs such as Ortho Novum 7/7/7, Triphasil or Tri-Norinyl have not been as effective as the stronger, monophasic OCPs such as Lo/Ovral, Ortho Novum 1+35 or Demulen 1/35 (in my experience). I believe the reason is that the multiphasic pills, by virtue of their lower dose and changing dosage, do not suppress ovulation as effectively as the higher-dose pills.

If the OCPs do not help or if the patient continues to have pain during her menstrual flow, change the OCP schedule so the patient takes a monophasic (Lo/Ovral, 1+35, etc.) OCP every day. She will:

- not stop at the end of a pack.
- not wait one week before restarting.
- not have a menstrual flow.

If she doesn't have a menstrual flow, she can't get dysmenorrhea. Taken continuously, OCPs are effective.

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If the OCPs do not help or if the patient continues to have pain during her menstrual flow, change the OCP schedule so the patient takes a monophasic (Lo/Ovral, 1+35, etc.) OCP every day. She will:

- not stop at the end of a pack.
- not wait one week before restarting.
- not have a menstrual flow.

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tive and safe. The only important drawback is that she will not have a monthly menstrual flow to reassure her that she is not pregnant.

After a number of months, women on continuous OCPs will usually experience spotting or breakthrough bleeding. It is not dangerous. If this becomes a nuisance, stop the OCPs for one week (she'll have a withdrawal bleed), and then restart the OCPs continuously.

### **Pregnancy and Bleeding**

Any pregnant patient who experiences bleeding should lie still (bedrest) until the bleeding stops for a few days. Then she may be moved

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If she is destined to miscarry, having her lie still will not prevent the miscarriage, but it will probably postpone the miscarriage until she can be moved to a safe place where D&C capability is present.

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to a definitive care setting (hospital). If she is destined to miscarry, having her lie still will not prevent the miscarriage, but it will probably postpone the miscarriage until she can be

moved to a safe place where D&C capability is present.

### **Threatened Abortion**

Patients who are less than 20 weeks pregnant and have cramping uterine pain are usually threatening to miscarry. Bedrest is a good idea for all these patients, not because it will prevent the miscarriage, but because it may postpone the miscarriage until the patient is in a location that can deal effectively with any complications.

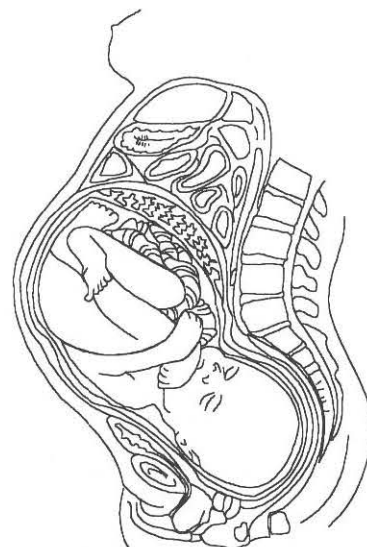
### **Placental Abruption**

Patients who are more than 20 weeks pregnant who have constant pain in the uterus are probably experiencing a placental abruption (premature separation of the placenta), particularly if accompanied by uterine tenderness. They may or may not have vaginal bleeding.

Bedrest with the patient lying on her left side and IV hydration are really the only options you have. If the pain improves with bedrest, keep the patient at rest. Consider transport later, after the pain resolves. If the pain shows no evidence of improving with rest, then you will need to transport her sooner since severe placental abruption may be fatal to the patient and/or her baby. Definitive treatment consists of cesarean section and treatment of the coagulopathy (bleeding disorder) that usually accompanies this problem.

### **Placenta Previa**

Any pregnant patient beyond the 20th week of pregnancy who is bleeding should lie still and **YOU SHOULD NOT DO A PELVIC EXAMINATION UNLESS INSTRUCTED TO DO SO BY A CONSULTING OBSTETRICIAN**. In most cases, the bleeding comes from a small placental abruption and will temporarily resolve with bedrest. Occasionally, the bleeding will be from a "placenta previa," a condition in which the placenta is located behind the cervix. If you perform a pelvic exam on a patient with placenta previa, you may cause massive bleeding which you won't be able to stop without a cesarean section.



Most bleeding in pregnant patients will stop temporarily with bedrest. If a definitive treatment center is close (a brief, smooth ambulance ride), then immediate transport of the patient is best. If a definitive treatment center is distant, it is probably better to stop the bleeding first with bedrest. Move her after a few days when the long and perhaps bumpy transport is less likely to re-start the bleeding. If the bleeding shows no sign of slowing despite bedrest, you may need to begin transport anyway.



## IUD Problems

Any woman with an IUD who has any symptoms of pelvic/abdominal pain or abnormal bleeding should first have the IUD removed.

## Ovarian Cyst

This is a fluid-filled sac arising from the ovary. These cysts are common and generally cause no trouble. Each time a woman ovulates, she forms a small ovarian cyst (3.0 cm in diameter or less), so depending on where she is in her menstrual cycle, you may find a small ovarian cyst. Large cysts (>7.0 cm) are less common and should be followed clinically or with ultrasound.

Occasionally, ovarian cysts may cause a problem by:

- Delaying menstruation
- Rupturing
- Twisting
- Causing pain

95% of ovarian cysts disappear spontaneously, usually after the next menstrual flow. Those that remain and those causing problems are often removed surgically.

## Ruptured Ovarian Cyst

This cyst has ruptured and spilled its contents into the abdominal cavity.

If the cyst is small, its rupture usually occurs unnoticed. If large, or if there is associated bleeding from the torn edges of the cyst, then cyst rupture can be accompanied by pain. The pain is initially one-sided and then spreads to the entire pelvis. If there is a large enough spill of fluid or blood, the patient will complain of right shoulder pain.

Symptoms should resolve with rest alone. Rarely, surgery is necessary to stop continuing bleeding.

## Unruptured Ovarian Cyst

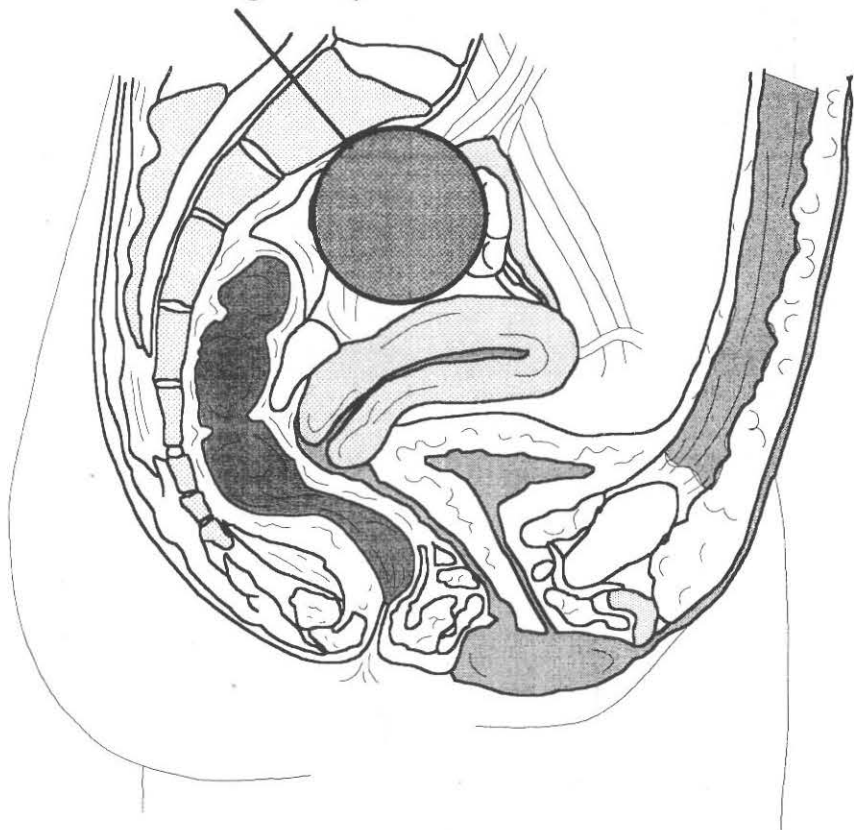
While most of these have no

symptoms, they can cause pain, particularly with strenuous exercise or intercourse. Treatment is symptomatic with rest for those with significant pain. The cyst usually ruptures within a month. Once ruptured, symptoms will gradually subside and no further treatment is necessary. If it doesn't rupture spontaneously, surgery is sometimes performed to remove it. This will relieve the symptoms and prevent torsion.

signs of peritonitis (rebound tenderness, rigidity). This problem is often indistinguishable clinically from a pelvic abscess or appendicitis, although an ultrasound scan can be helpful.

Treatment is surgery to remove the necrotic adnexa. If surgery is unavailable, then bedrest, IV fluids and pain medication may result in a satisfactory, though prolonged, recovery. In this suboptimal, non-surgical setting, metabolic acidosis resulting

## 5 CM Ovarian Cyst Pressing on the Sacrum with Presenting Complaints of Lower Back Pain



## Torsioned Ovarian Cyst

A torsioned ovarian cyst occurs when the cyst twists on its vascular stalk, disrupting its blood supply. The cyst and ovary (and often a portion of the fallopian tube) die and necrose.

Patients with this problem complain of severe unilateral pain with

from the tissue necrosis may be the most serious threat.

Other surgical conditions which may resemble a twisted ovarian cyst (such as appendicitis or ectopic pregnancy) may not have a good outcome if surgery is delayed. For this reason, patients thought to have a torsioned ovarian cyst should be moved to a definitive care setting where surgery is available.

## Dysmenorrhea

Painful menstrual cramps. These midline, lower abdominal, suprapubic cramps or aches usually begin shortly before the beginning of menses and can persist for a few days into the menstrual flow. Then complete relief occurs and the patient remains pain-free until the next month.

This is not a dangerous condition but can be a powerful nuisance to the patient. The single most effective medication to treat this is oral contraceptive pills (fixed-dose or monophasic OCPs like Lo/Ovral, 1/35s, etc.) Standard doses of Naprosyn, or Motrin can be helpful.

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**The single most effective medication to treat this is oral contraceptive pills (fixed-dose or monophasic OCPs like Lo/Ovral, 1/35s, etc.)**

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Patients with endometriosis may also complain of monthly pain. If the symptoms are severe and do not respond to OCPs (cyclic or continuous), or NSAIDs, then endometriosis is usually looked for with diagnostic laparoscopy.

## Mittelschmerz

Pain associated with ovulation (from German: "middle pain") which typically occurs at mid-cycle...half way between the menstrual flows.

The pain is either right or left-sided, depending on which ovary released the egg that month. Women do not usually alternate sides, but rather randomly ovulate...sometimes one side...sometimes the other.

The pain, when it occurs, is mild to moderate. There may be some mild peritoneal signs. By the time the patient is examined, the pain is often improving. If the symptoms are severe or last more than a day or two,

consider other diagnoses such as ovarian cyst, ectopic pregnancy or endometriosis.

Treatment is supportive. Usually a day or two of rest will see the complete resolution of symptoms. Rarely the symptoms last longer. Any mild analgesic will make them feel better.

## Functional Bowel Syndrome

Intermittent crampy abdominal pain, associated with episodes of constipation or diarrhea, with or without mucousy stools.

Patients with this problem give a history of periodically recurring symptoms, often provoked by stress. X-ray evaluation of the abdomen will show no abnormality and all lab studies will be normal. The pain will move from place to place in the abdomen.

Treatment is generally supportive with reduction of stress when that is possible. Avoiding (or treating) constipation or diarrhea is helpful. Non-narcotic analgesics can be given if the pain is quite significant. Antispasmodics are sometimes helpful. Psychoactive drugs are inadvisable unless a specific psychological disorder is present which would be expected to respond to the psychoactive drug.

## Gastroenteritis

Acute inflammation of the stomach and intestines, resulting in crampy abdominal pain, distention, nausea, vomiting, diarrhea, fever and chills. This may be due to bacterial infection, viral infection, or ingestion of a toxic substance (food poisoning).

Patients usually complain of diffuse, cramping abdominal pain with marked GI symptoms. The pain migrates from place to place. Treatment is mostly supportive (rest and observation in mild cases, IV fluids in severe cases) with specific antibiotic therapy when the causative organism is known and sensitive to this approach.

## Diverticular Disease

Diverticular disease represents a spectrum of abnormalities ranging from asymptomatic "diverticula" (small outpouchings of the colon) to "diverticulitis" with peritonitis, abscess formation and sometimes perforation of the colon.

Diverticular disease is usually focused in the sigmoid colon in the left lower quadrant, although diverticula can be found in small numbers anywhere along the course of the large and small intestines.

Crampy lower abdominal pain with diarrhea alternating with constipation are symptoms common to those with diverticular disease (and also functional bowel syndrome). If accompanied by fever and elevated white blood count with a mass in the left lower abdomen, "diverticulitis" is likely to be present.

Mild symptoms require only supportive treatment. Diverticulitis often requires IV fluids and antibiotics.

## PID

Pelvic Inflammatory Disease (PID) is a bacterial inflammation of the fallopian tubes, ovaries, uterus and cervix.

Initial infections are caused by single-agent STDs, such as gonorrhea or chlamydia. Subsequent infections are often caused by multiple non-STD organisms (E. Coli, Bacteroides, etc.).

### PID: Mild

Gradual onset of mild bilateral pelvic pain with purulent vaginal discharge is the typical complaint. Fever <100.4 and deep dyspareunia are common.

Moderate pain on motion of the cervix and uterus with purulent or mucopurulent cervical discharge is found on examination. Gram-negative diplococci or positive chlamydia culture may or may not be present. WBC may be minimally elevated or normal.



Treatment consists of Doxycycline 100 mg PO BID x 10-14 days, plus one of these:

- Cefoxitin 2.0 gm IM with probenecid 1.0 gm PO, or
- Ceftriaxone 250 mg IM, or
- Equivalent cephalosporin

### **PID: Moderate to Severe**

With moderate to severe PID, there is a gradual onset of moderate to severe bilateral pelvic pain with purulent vaginal discharge, fever >100.4 (38.0), lassitude, and headache. Symptoms more often occur shortly after the onset or completion of menses.

#### **MODERATE/SEVERE PID**

**ANTIBIOTIC REGIMEN:**  
(Center for Disease Control, 1989)

Doxycycline 100 mg PO or IV every 12 hours, plus either:

- Cefoxitin, 2.0 gm IV every 6 hours, or
- Cefotetan, 2.0 gm IV every 12 hours

This is continued for at least 48 hours after clinical improvement.

The doxycycline is continued orally for 10-14 days.

Excruciating pain on movement of the cervix and uterus is characteristic of this condition. Hypoactive bowel sounds, purulent cervical discharge, and abdominal distention are often present. Pelvic and abdominal tenderness is always bilateral except in the presence of an IUD.

Gram-negative diplococci in cervical discharge or positive chlamydia culture may or may not be present. WBC and ESR are elevated.

Treatment consists of bedrest, IV fluids, IV antibiotics, and NG suction if ileus is present. Since surgery may be required, transfer to a definitive surgical facility should be considered.

#### **MODERATE/SEVERE PID**

**ALTERNATIVE ANTIBIOTIC REGIMEN:**  
(Center for Disease Control, 1989)

- Clindamycin 900 mg IV every 8 hours, plus
- Gentamicin, 2.0 mg/kg IV followed by 1.5 mg/kg IV every 8 hours

This is continued for at least 48 hours after clinical improvement.

After IV therapy is completed, doxycycline 100 mg PO BID is given orally for 10-14 days.

### **Endometriosis**

A condition in which fragments of the lining of the uterus are found outside the uterus but within the abdomen. Each month, with menses, these fragments bleed into the abdomen causing pelvic/abdominal pain, scarring, and sometimes infertility.

The classical patient with endometriosis complains of about 6 months of steadily worsening dysmenorrhea, deep dyspareunia, and sometimes painful bowel movements. The physical exam will reveal the adnexal areas and cul-de-sac to be vaguely tender, without masses. When a rectal exam is done and the cervix stretched upward, tender nodules can be felt along the utero-sacral ligaments.

Many medical/surgical treatments are effective, but are best coordinated by a GYN surgeon. In the meantime, a simple but expedient therapy is taking a low-dose, monophasic OCP

each day, without stopping for a menstrual flow. This approach is safe and will postpone menses for months. Make sure PID has been ruled out since it can mimic this.

### **Appendicitis**

This condition is characterized by progressive right lower quadrant pain. Nausea and anorexia occur early. Vague pain begins in the periumbilical area and migrates over several hours to McBurney's Point in the right lower quadrant. The patient lies supine with the right hip flexed.

On examination, marked tenderness at McBurney's Point, voluntary guarding, rigidity and rebound tenderness are found. Fever is not common unless appendix is ruptured. Bowel sounds are quiet and no bowel movement will have occurred since the onset of the pain. Motion of the uterus or right adnexa causes marked pain.

X-ray of the abdomen may show an oval, calcified fecalith up to 1-2 cm in diameter in the right lower quadrant of the abdomen. A sentinel loop of gas-filled small bowel next to the appendix may be seen.

#### **ANTIBIOTIC TREATMENT OF APPENDICITIS**

Mefoxin 2 gm IV every 6 hours,

**plus**

Gentamicin 80 mg IV every 8 hours, or

Gentamicin 80 mg IV every 8 hours,

**plus**

Metronidazole (Flagyl)

Loading dose: 15 mg/kg infused IV over 1 hour (1 gm or 1,000 mg for a 70 kg adult)

Maintenance dose: 7.5 mg/kg infused IV over 1 hour, every 6 hours (500 mg for a 70 kg adult)

The treatment is essentially surgical. Antibiotics may be helpful but are not a substitute for surgery. Begin treatment with intravenous antibiotics while arranging for transfer to a surgical facility for appendectomy.

### Bowel Obstruction

A condition in which a portion of the large or small intestine becomes obstructed.

Patients with bowel obstruction complain of pain, which may be crampy or constant. Abdominal distention is prominent and patients are constipated. Nausea and vomiting usually accompany this problem. Plain x-rays of the abdomen show a distended, gas-filled loop of intestine proximal to the obstruction. If the problem is not resolved, gangrene and peritonitis develop.

Initial treatment consists of decompression from above with NG suction and support with IV fluids. Partial obstructions are usually relieved with these simple measures. Complete bowel obstruction requires surgery and bowel resection. Without surgery, a complete bowel obstruction would be expected to be fatal. If surgical therapy is unavailable, IV antibiotics should be started while arranging for prompt Medical Evacuation.

### Degenerating Fibroid

When a fibroid tumor of the uterus (leiomyoma) has metabolic needs which exceed its blood supply, degeneration occurs.

These benign uterine muscle tumors are common (40% of all women by age 40), and generally without symptoms. Occasionally, they cause trouble through excessive bleeding or pain. With degeneration, they become very tender to palpation, but the adnexal structures (tubes and ovaries) are not tender (as they would be with PID).

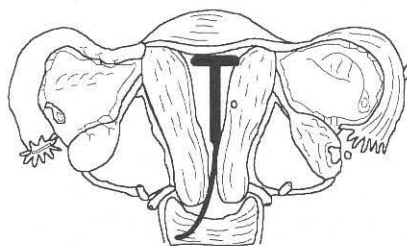
Treatment is supportive. (bedrest, oral analgesia) Symptoms gradually

resolve over 3 weeks. Definitive therapy consists of surgical removal although this is usually unnecessary.

### Infected/Rejected IUD

Sooner or later, as many as 5% of all intrauterine devices will become infected. Patients with this problem usually notice mild lower abdominal pain, perhaps a fever and deep dyspareunia. The uterus is tender to touch and one or both adnexa may also be tender.

Treatment consists of removal of the IUD and broad-spectrum antibiotics. If the symptoms are mild and the fever low-grade, oral antibiotics (ampicillin, cephalosporins, tetracycline, etc.) are very suitable. If the patient's fever is high, the symptoms significant or she appears quite ill, IV antibiotics are a better choice (cefotaxime, or metronidazole plus gentamicin, or clindamycin plus gentamicin). If an IUD is present and the patient is complaining of any type of pelvic symptom, it is wisest to re-



move the IUD, give antibiotics, and then worry about other possible causes for the patient's symptoms.

IUDs can also be rejected without infection. Such patients complain of pelvic pain and possibly bleeding. On pelvic exam, the IUD is seen protruding from the cervix. It should be grasped with an instrument and gently removed. It cannot be saved and should not be pushed back inside.

### Cystitis

Bacterial infection of the bladder. These bladder infections are quite common. The patient complains of the classical symptoms of urinary frequency, urgency, burning on uri-

nation, and pain on completion of urination. Blood, if present, denotes "hemorrhagic cystitis." A tender bladder is virtually diagnostic, although endometriosis can also cause such tenderness.

### TREATMENT OF CYSTITIS

- Pushing fluids, particularly acid-containing liquids such as cranberry juice or any citric juice (orange, lemon, grapefruit).
- Any oral broad-spectrum antibiotic, such as Bactrim, Septra, Cephalosporin, Ampicillin
- Pyridium for a day will provide immediate relief.

### Pyelonephritis

A kidney infection. These infections are characterized by CVA pain or tenderness, chills, fever, lassitude, and sometimes nausea and vomiting. They may be preceded by cystitis or may come without warning.

Treatment is vigorous antibiotic therapy (frequently IV antibiotics because of the seriousness of the illness) and brisk fluid intake (IV or PO).

*As in most areas of medicine, there may be more than one way to deal with any particular gynecologic problem. Although one basic approach was given here, there may be other approaches which will give very good or superior results.* □

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CDR Hughey is a Naval Reserve obstetrician/gynecologist in private practice as a Senior Attending Physician at Evanston Hospital (Illinois) and Assistant Professor of Obstetrics & Gynecology at Northwestern University School of Medicine.



# Carrier Uses Teleradiology

The benefits computer technology offers the military are usually gauged by how much of an upper hand they give one force over another. Several departments on board the aircraft carrier USS *Constellation* (CV-64) recently discovered another facet of computers in the military—one with the potential to save lives.

On 4 Jan 1995, a sailor sustained a severe foot injury in a mishap on the carrier's flight deck while the ship was conducting flight operations in the Indian Ocean. The ship's surgeon, LCDR Bob Chastanet, performed the initial surgery to clean and stabilize the injury.

Afterward, *Constellation* doctors, concerned over the severity of the injury, realized the need for a second opinion from an orthopedic expert. So Chastanet reviewed the case by phone with specialists at the Naval Medical Center, San Diego, CA. They asked to see the X-rays, since the complicated injury was difficult to describe over the phone.

With the ship roughly 9,000 miles from San Diego, delivering the X-rays by mail or aircraft was out of the question. With a system called teleradiology, the medical community can share X-rays over long distances using telecommunications systems—X-rays are digitized and transmitted electronically by satellite. But *Constellation* doesn't have this system yet.

When RADM Michael Bordy, Commander, Cruiser-Destroyer Group 1, was briefed on the medical condition of the injured sailor, he suggested using the ship's Joint Deployable Intelligence Support System (JDISS). JDISS is a telecommunications system for gathering and disseminating intelligence for a carrier battle group and shore facilities. In an emergency, it can transmit other information.

The Cruiser-Destroyer Group 1 Intelligence Officer, CDR Stu Yaap, contacted *Constellation*'s Intelligence Officer, CDR Jerry Stoll, and set the process in motion. "JDISS allows real-time satellite communications with any other officer for intelligence specialists who operate the system. JDISS allows users to transmit images while at the same time allowing personnel on both ends to "talk" to each other by typing messages on-screen.

The X-ray file was transmitted to the Fleet Intelligence Training Center Pacific (FITCPAC) in San Diego—the closest facility to Balboa with a JDISS terminal.

San Diego Naval Medical Center had already been alerted by electronic mail or e-mail from the ship that FITCPAC would be receiving the X-ray images. The orthopedic specialists at San Diego viewed the X-rays as soon as they were received from FITCPAC. The orthopedists confirmed that the patient needed to be seen by an orthopedic specialist as soon as possible. A short time later, the injured sailor was bound for a shore treatment facility in Bahrain. *Constellation*'s Intelligence Officer CDR Jerry Stoll said he's glad high-tech computers and their operators were able to help during the emergency. "I'm all for it," he said. "It's an additional benefit for the system that we didn't have a few years ago."

"The JDISS System opens another avenue in communications for ship-based doctors and shore-based facilities," said CDR John Toeller, the ship's senior medical officer.

*Constellation* is currently in the Persian Gulf on its 17th overseas deployment. The ship is expected to return to its home port of San Diego in May.

—Navy Wire Service



# Naval Medical Research and Development Command Highlights

## ●Experimental Bone Marrow Cell Growth System for Use on the Battlefield Was Launched on the Space Shuttle

Astronauts subjected to prolonged periods of actual or simulated microgravity develop blood cell abnormalities, the most notable are progressive anemia and abnormalities in red blood cell structure. The February 1995 shuttle payload included an experiment developed by Navy scientists from the Naval Medical Research Institute (NMRI) who are investigating the growth and development of bone marrow stem cells. The findings of this experiment can lead to healthier and more productive astronauts. The data can also lead to lifesaving techniques on the battlefield for casualties of acute bone marrow injury caused by toxic agents or ionizing radiation. NMRI researchers and a civilian CRADA partner developed a unique *in vitro* hematopoietic microenvironment culture system that mimics the blood producing microenvironment of bone marrow. Development of this small and self-contained bone marrow culture system may result in a forward deployable treatment that is technically simple and no more demanding than a blood transfusion. From a small sample of a patient's own bone marrow, this culture system has the potential of rapidly growing quantities that can be transplanted back into the patient. This kind of treatment, called *ex vivo* hematopoietic cell expansion with autologous bone marrow transplantation, would be potentially available to 100 percent of casualties (since their own marrow is used and no donor is necessary) with far fewer complications (graft vs. host disease) seen with current treatments.



## ●Countermeasures to Heat Stress in Military Personnel

High-heat environments impair work performance and can compromise combat mission success. To decrease the incidence of heat stress and increase performance capability, microcooling countermea-

sures have been developed for personnel working in encapsulated garments (e.g., chemical, biological, radiological ensembles and firefighting ensembles). Researchers at the Naval Health Research Center, San Diego, CA, are involved in a study that will generate a new data base regarding gender differences pertaining to these countermeasures by determining the effectiveness of existing microclimate cooling systems (MCS) (a whole-body water-cooled system, a vest air-cooled system, and a vest phase-change material system). This data will serve as a basis for development or modification of a MCS to be used in a mixed-gender population. Results of this project will be reported to the Office of Naval Research, the Bureau of Medicine and Surgery, and to DOD Warfare platforms.



## ●Neck and Back Strain Profiles on Rotary-Wing Female Pilots

The number of women entering naval aviation is at an all-time high and many will be assigned to helicopter squadrons. With the increasing number of female pilots participating in rotary-wing operations there is a need to study how female pilots respond to the stressful helicopter environment. Researchers will develop a data base of normal neck and back fatigue profiles of women focusing on the effects of cockpit ergonomics, helmet design, peripherals on the helmet, and vibration and fatigue leading to soft tissue injury. The data base will assist in the formulation of methodologies to minimize neck and back strain that may lead to long-term soft tissue injuries in female rotary-wing pilots.

For more information on these and other research efforts by the Naval Medical Research and Development Command, contact CAPT T.J. Singer, MSC, Director, External Relations, at DSN 295-6182, Commercial 301-295-6182, FAX 301-295-4033, or E-mail [RDC03@NMRDC1.NMRDC.NNMC.NAVY.MIL](mailto:RDC03@NMRDC1.NMRDC.NNMC.NAVY.MIL).



## Navy Medicine circa 1910



BUMED Archives

Navy medicine on display at an unidentified fair

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